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THE UNIVERSITY OF KANSAS.

CATALOGUE

OF THE

DEPARTMENT OF PHARMACY,

FOR THE COLLEGIATE YEAR 1888-9.

ALSO,

ANNOUNCEMENTS FOR 1889-90.

TOPEKA.
KANSAS PUBLISHING HOUSE: CLIFFORD C. BAKER, STATE PRINTER.
1889.

MAIN BUILDING.

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JULY.

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1890.

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ANNOUNCEMENTS FOR 1889-90.

The regular meetings of the Board of Regents are held on the second Tuesday of April and on the third Tuesday of November.

1889.

Sept. 11, Wednesday—First term begins.

Sept. 11 and 12, Wednesday and Thursday—Examination and classification of candidates for admission.

Sept. 13, Friday—General assembly of students and annual address in University Hall, at 10 o'clock A. M.

Nov. 14, Thursday—Second half-term begins.

Nov. —, —, —, Thursday, Friday and Monday—Thanksgiving recess.

(CHRISTMAS RECESS, SATURDAY, DECEMBER 21, TO MONDAY, JANUARY 6, INCLUSIVE.)

1890.

Jan. 24 to 31, Friday to Friday, inclusive—Semi-annual Examinations.

Feb. 3, Monday—Second term begins.

April 3, Thursday—Second half-term begins.

April —, —, —, Thursday, Friday and Monday—Spring recess.

May 29 to June 5, Thursday to Thursday, inclusive—Annual Examinations.

June 8, Sunday, 8 P. M.—Baccalaureate Sermon.

June 9, Monday, 10 A. M.—Anniversary Exercises.

June 12, Thursday, 10 A. M.—Commencement.

(SUMMER VACATION OF THIRTEEN WEEKS.)

ORGANIZATION.

By act of the Legislature at the session of 1885, it was provided as follows:

"That the Board of Regents of the State University be directed to establish, without delay, a chair of Pharmacy in said institution."

It was further enacted at the same session of the Legislature that—

"The Board of Regents of the State University shall appoint five registered pharmacists, who shall hold office for the term of four years, to conduct the examination of all graduates in pharmacy, and sign the certificates of graduation."

In accordance with this action of the Legislature, the Board of Regents, at its meeting in June, 1885, elected Lucius E. Sayre, Ph. G., of Philadelphia, a practical Pharmacist, and an experienced instructor, late Professor of Pharmacy in the Woman's Medical College, and Instructor in Materia Medica in the Philadelphia College of Pharmacy, and author of "Organic Materia Medica and Pharmacal Botany," as Professor of Pharmacy, and ordered the organization of the department at the beginning of the fall term, September 9th, 1885. At a subsequent meeting the Board of Examiners in Pharmacy was appointed.

Further provision was made for the University by the Legislature of the State in an act approved February 25, 1889, and entitled "An act to provide for the government and maintenance of the University of Kansas." This act, repealing all former legislation bearing upon the same topics, continues the name of THE UNIVERSITY OF KANSAS, and its location at LAWRENCE, in DOUGLAS COUNTY. It further enacts—

That the University shall provide the means of acquiring a general and thorough knowledge in literature, the sciences, and the arts; and also provide students who desire to pursue special studies, with the most approved appliances, authorities and instruction to insure the greatest knowledge and research in any special branch of learning connected with university education; that it shall consist of three departments: I. A Department of the Literatures; II. A Department of the Sciences; III. A Department of the Arts. Within these three departments there shall be established such schools as the Regents in connection with the Faculty may order. The same law further enacts that the government of the University shall be vested in a board of seven Regents, six of whom shall be appointed by the Governor and confirmed by the Senate, and whose term of office shall be four years; that the Board of Regents shall be a body corporate, under

the name of "The Regents of the University of Kansas," and as such may sue and be sued, make contracts, and hold and transfer property, both real and personal, for the University.

The Board of Regents is also invested with the power to elect a chancellor, who shall be the chief officer of the University; to appoint professors, assistants, tutors; to increase and diminish their number as the interests of the University may require; to employ a janitor, librarian, and such other officers and employés as in their judgment the needs of the University require.

They are also empowered to confer such degrees and grant such diplomas as are usually conferred and granted by other institutions of learning.

THE UNIVERSITY OF KANSAS.

BOARD OF REGENTS.

HON. J. F. BILLINGS	Clay Center	Term expires	1891
HON. C. R. MITCHELL	Geuda Springs	" "	1891
HON. M. P. SIMPSON	McPherson	" "	1891
HON. JOEL MOODY	Mound City	" "	1893
HON. C. S. GLEED	Topeka	" "	1893
HON. W. C. SPANGLER	Lawrence	" "	1893

REV. J. A. LIPPINCOTT, *Chancellor*, ex officio member of the Board.

OFFICERS OF THE BOARD.

J. A. LIPPINCOTT.....*President*, ex officio.
M. P. SIMPSON.....*Vice-President.*
C. S. GLEED.....*Secretary.*
C. R. MITCHELL.....*Auditor.*

OFFICERS OF THE UNIVERSITY.

J. A. LIPPINCOTT.....*Chancellor.*
W. E. CURRY.....*Secretary and Treasurer.*
W. J. HAUGHAWOUT.....*General Agent for University Lands.*
E. F. CROCKER.....*Supt. of Buildings and Grounds.*

BOARD OF EXAMINERS IN PHARMACY.*

R. J. BROWN, Leavenworth. B. W. ALDRICH, Wichita.
D. W. MORRIS, Emporia. GEORGE LEIS, Lawrence.
WILLIAM C. McPIKE, Atchison.

OFFICERS OF THE BOARD.

R. J. BROWN, *President.*
GEORGE LEIS, *Secretary.*

*For 1888–89.

FACULTY.

JOSHUA ALLAN LIPPINCOTT, D. D., LL. D., President.

LUCIUS ELMER SAYRE, Ph. G., Dean,
Pharmacy and Materia Medica.

FRANCIS HUNTINGTON SNOW, Ph. D.,
Botany.

DAVID HAMILTON ROBINSON, Ph. D.,
Latin.

EDGAR HENRY SUMMERFIELD BAILEY, Ph. D.,
Chemistry and Toxicology.

LUCIEN IRA BLAKE, Ph. D.,
Physics.

LEWIS LINDSAY DYCHE, A. M., M. S.,
Anatomy and Physiology.

ADELAIDE RUDOLPH, A. B.,
Assistant in Latin.

WILLIAM SUDDARDS FRANKLIN, B. S.,
Assistant in Physics.

EDWARD CURTIS FRANKLIN, B. S.,
Assistant in Chemistry.

GEORGE FRANCIS WEIDA,
Assistant in Pharmaceutical Laboratory.

STUDENTS.

POST-GRADUATE.

Weida, George Francis,	*Lawrence, Kansas.*

SENIOR PHARMACY.

Hill, Bradford Loring,	*Belleville.*
Hilton, Willard Bartholow,	*Atchison.*
Hogeboom, Denton,	*Topeka.*
Himoe, Stephen Ernest,	*Lawrence.*
Kennedy, John Howard,	*Lawrence.*
Kaiser, George Frederick,	*Ottawa.*
Morris, Edward William,	*Emporia.*
Parker, Robert,	*Grinnell, Ia.*
Pollock, Robert,	*Lawrence.*
Scott, John Nesbit,	*Peabody.*
Shane, Daniel Edward,	*Lawrence.*
Snepp, Loren Wade,	*Olathe.*
Stover, Arthur R.,	*Baldwin.*
Webb, Alfred Ton,	*Nortonville.*

Senior Pharmacists, 14.

JUNIOR PHARMACY.

Adams, Hiram Alfred,	*Ottawa.*
Bacon, Morton Samuel.	*Yates Center.*
Bessey, Elmer E.,	*Edna.*
Boaz, Volney Tate,	*Girard.*
Briggs, Ada Eleanor,	*Lawrence.*
Claassen, John David,	*Newton.*
Corey, Orville Samuel,	*Pleasant Ridge.*
Fiegenbaum, Benjamin F.,	*Clay Center.*
Fox, Jared Copelan,	*Atchison.*
Grabe, Lorena,	*Beatrice, Neb.*
Hackett, Leroy Soles,	*Cottonwood Falls.*
Hamblin, Fred Burroughs,	*Ottawa.*
Hardy, Irby Vincent,	*Belleville.*
Kelly, Samuel James,	*Olathe.*
Kistler, Charles H.,	*Savanna, Mo.*
Lemmon, Charles B.,	*Armourdale.*
Martin, Harry James,	*Burlingame.*
Martin, W. F.,	*Kansas City.*
Moore, Fred William,	*Clifton.*
Oatman, Homer Clifton,	*Lawrence.*

Peabody, William Legoria, ... *Slater, Mo.*
Phillips, Carl, ... *Lawrence.*
Putnam, Silas Oscar, ... *Leavenworth.*
Smelser, Edgar William, ... *Emporia.*
Thomas, Arthur William, ... *Wakefield.*
Youngberg, John Edward, ... *Ottawa.*

Junior Pharmacists, 26.

PREPARATORY MEDICAL COURSE.

Briggs, Ada Eleanor, ... *Lawrence.*
Thompson, Margaret, ... *Lawrence.*

Preparatory Medical, 2.

DEPARTMENT OF PHARMACY.

TERMS OF ADMISSION.

The candidate must pass an entrance examination in the following studies:

1. Arithmetic, including the Metric System.
2. History of the United States.
3. Geography, Descriptive and Physical.
4. English Grammar and Composition.
5. Constitution of the United States.*

ADMISSION BY CERTIFICATE.

Graduates of *accredited High Schools* of the State are admitted without examination, on presentation of diploma, or of an official certificate of such graduation. Principals of private schools and academies, and of the public High and Grammar Schools of the State, whose work is known and acceptable to the Faculty, may, by correspondence with the Chancellor, arrange for *home examinations* upon the subjects (or any of them) which are required for admission to the School of Pharmacy. These home examinations may also include any of the studies of the sub-Freshman class.

Blank forms for certificates of admission will be furnished such teachers as desire them. In all cases arrangements should be made in advance, and the certificates must be approved by the Professor in charge of the subjects covered by them. A *partial* certificate will be received, but in such cases the student must pass the usual examinations upon the subjects not included in the certificate.

In all cases, if the first term's work in the University develop the fact that the student's preparation has been imperfect, the right of the professor in charge is reserved to require further and satisfactory examination.

COURSE OF STUDY.

JUNIOR YEAR.

FIRST TERM.

Materia Medica, twice a week.
Pharmacy, three times a week.
Physics.
Latin.
Elementary Chemistry (*a*).
Qualitative Analysis (*b*).

*The student of Pharmacy who lacks a thorough mastery of elementary branches labors under serious disadvantages.

SECOND TERM.

Pharmacy, twice a week.
Materia Medica, three times a week.
General Chemistry, half-term (*a*).
Botany, half-term (*b*).
Physics, with metric system.
Laboratory Practice in Pharmacy.
Crystallography, twice a week.
Practice in Physical Laboratory.

SENIOR YEAR.

FIRST TERM.

Pharmacy and Laboratory Practice, half-term (*a*).
Materia Medica, half-term (*b*).
Structural Botany, half-term (*a*).
Quantitative Analysis.
Physiology, half-term (*b*).
Physiological Chemistry, half-term (*b*).
Microscopic Examination of Drugs.

SECOND TERM.

Materia Medica, half-term (*a*).
Organic Chemistry, half-term (*a*).
Toxicology, half-term (*b*).
Examination of Foods and Medicines.
Urinary Analysis.
Preparation of Thesis.

The course of study above laid out is intended to give students ample preparation for the practice of Pharmacy, and to lay the foundation for special work in the lines of Analytical Chemistry and the examination of foods and medicines.

Although much more extended than usual in schools of Pharmacy, the studies in this course are only such as are of advantage to the pharmacist. The course consists of two years of nine months each.

The morning hours, from 9 to 1 o'clock, are occupied mostly by lectures, recitations, and microscopical work, while laboratory work in Physics, Chemistry, and Pharmacy are assigned mostly to the afternoon, from 2 to 6 P. M., and the evening is left for private study.

PHARMACY.

JUNIOR COURSE.

The instruction to Junior students in practical pharmacy and pharmaceutical chemistry consists of lectures and laboratory practice. The course is based upon the United States Pharmacopœia. A comparison

of this standard with the pharmacopœias used in different countries is made. The study of specific gravity and of different systems of weights and measures receives attention. The operations in pharmacy are then divided in such manner as to form a graded course of study. The simplest treatment to which the drug is subjected during the process of preparation for manipulation, dispensing and administration is first considered. For example: The process of pulverization, the methods of grinding, powdering and sifting are given, both in the ordinary operations of the store and in those of the manufacturer. Subsequently, by successive steps, are taken up the higher forms of pharmaceutical work, such as solution, decantation, elutriation, filtration. Next in order follow such processes as maceration, infusion, percolation; subsequently, processes requiring heat, such as evaporation, distillation, and sublimation; finally, precipitation, crystallization, and granulation.

The Galenical preparations are then treated of, starting with the simpler ones, as waters, and extending to the more complex, as fluid extracts and oleo-resins. Extemporaneous Pharmacy follows, and receives careful attention.

The beginning of the second term is devoted to the consideration of inorganic substances used in medicine. These are classified according to their chemical relations, as follows: The elementary substances, such as chlorine, bromine, and iodine; the alkalies and alkaline earths; and finally, the salts of the metals, such as iron, zinc, lead, mercury, etc. The presentation of this portion of the course is entirely limited to the pharmaceutical bearings of these substances, but brings into use at the same time the knowledge the student has acquired in chemistry.

In the latter part of this course the organic substances used in medicine are taken up and discussed briefly, as an introduction to the Senior course.

SENIOR COURSE.

A review of the important features of the Junior course is given at the beginning of the year, followed by lectures devoted more particularly to pharmaceutical chemistry. The subsequent lectures embrace a more careful study of the organic substances used in medicine, their constituents, their chemical and physical characteristics, and the application of these in the preparations of the United States Pharmacopœia. Each drug is considered individually, but drugs and their preparations are so grouped as to make prominent a study of the proximate principles. For instance, those containing gums and mucilage will be associated on the one hand, and those containing proximate principles on the other. Subsequently the organic substances obtained from the animal kingdom are considered.

While the drugs and preparations of the U. S. P. claim principal place as the more important, due attention is paid to non-officinal ones, and in both cases great care is given to the detection of impurities by the officinal and other methods of testing.

LABORATORIES.

Pharmaceutical.—The laboratory, especially fitted up for pharmaceutical work, is in the Chemical building. It is well appointed, each student having a desk to himself, which is well provided with apparatus for his special work. Adjoining the laboratory is the store-room, which is so arranged and supplied that the student can provide himself with drugs and chemicals at any time of the day. In this laboratory the student by his manipulations follows the lectures in pharmacy. In the Junior course he makes a number of Galenical preparations. Prescription-reading and compounding are also studied from original prescriptions of different physicians from various parts of the United States. Three thousand such prescriptions are now on hand in the department, and others will be added from time to time. The advantage of such practice under competent instruction must at once be apparent.

In the Senior course attention is paid to the examination of foods and medicines; the microscopical examination of drugs with section mounting; physiological chemistry, and urinary analysis. Practice is also given in the assay of important drugs. The last weeks of the course are devoted to original research in the preparation of a thesis, under the direction of the instructor in charge. The investigation may consist of a chemical plant analysis, the trial of methods of assay, the exposure of adulterations, or research in any direction approved by the Faculty. In all cases the literature of the subject must be read up as far as possible, and references given.

The chemical, physical, and botanical laboratories are well appointed for their special work. There is a special laboratory for each of the two kinds of chemical work—qualitative and quantitative analysis. The physics department has eight rooms set apart for different kinds of physical study. There are two botanical laboratories, one for systematic and the other for microscopic (or histological) botany. These laboratories are open at all hours of the day, and are so situated with reference to the lecture rooms, that the Professors in charge of the departments can be at any time consulted by the students.

MATERIA MEDICA.

JUNIOR COURSE.

The first part of the course comprises a general survey of the subject. The list of important organic drugs is examined, their officinal name, geographical and botanical origin, part of the plant used, and their medical properties, are pointed out, as also the various methods in which drugs are classified for study.

In order more fully to understand the subject, some time is devoted to the consideration of botany.

This is then followed by the study of the vegetable drugs, classified according to their botanical relations; the more important characteristics are pointed out, and the crude drugs are placed in the hands of the student for examination, which, while developing the powers of observation, insures ready recognition.

SENIOR COURSE.

The lectures to Senior students in this department are devoted more especially to the physical and structural characteristics of drugs. The classification adopted presents, in the first place, the roots and underground stems. These are then subdivided according to their relations as to special physical properties, those of a more cellular structure being placed in the one class, those of a fibrous and woody character in another. These, with intermediate forms, are so subdivided and arranged that their characteristics may be the more readily studied. Adulterations receive due consideration. No effort is spared to make the student so familiar with the officinal and important drugs, that his recognition of them is instantaneous and reliable.

The medicinal properties of drugs and their therapeutical and physiological action are then specially dwelt upon.

BOTANY.

The instruction in Botany is the same as that given to Freshmen and Sophomores in the Collegiate department. Two weeks are devoted to the review of a text-book, for the purpose of fixing the elementary principles of the science, including the necessary botanical nomenclature. Eight weeks are then devoted to laboratory work, in which the student gives his chief attention to the wild phænogamous plants of the surrounding region. Accuracy of observation and skill in description are thus acquired, making the correct classification of plants a comparatively easy undertaking. In connection with this part of the work, each student is required to prepare a small herbarium of at least forty species of plants, special prominence being given to the medicinal species.

The foregoing combination of text-book, laboratory work, and field-practice, is intended to give such familiarity with the elementary principles of systematic botany, that a student of average ability will acquire the power, with the aid of a good manual, to determine for himself any species of wild plant with which he may be brought into contact.

In the second year, a half-term of ten weeks is devoted to advanced work in structural botany. By means of the compound microscope

the student is made acquainted with the internal structure of plants of all classes, from the simplest protophytes to the most complicated phænogams. The botanical laboratory is supplied with fifteen compound microscopes of the best manufacture, with magnifying powers ranging from 75 to 1,500 diameters, and one of these instruments is at the service of each student for two hours daily.

CHEMISTRY.

In the first term of the Junior year, during the first ten weeks, instruction is given in Theoretical and Elementary Chemistry. The student has the opportunity of becoming familiar with the nomenclature of the science, with the simpler chemical formulæ and reactions, and with the methods used for solving problems in stochiometry. At the same time, the most important elements are discussed, and the characteristic salts of each are studied. Considerable time will be devoted to laboratory work, thus bringing about a practical acquaintance with the substances under consideration.

Having passed in this subject, during the second half of this term the student will devote at least twelve hours per week to the study of Qualitative Analysis. He is furnished with the necessary apparatus and chemicals, and follows a systematic course of work in the laboratory. Lectures are given at intervals upon this work. At the close of the course, the examination, which is a practical one, is so conducted that the student must demonstrate his ability to analyze an unknown mixture. The time occupied by the course is not so much considered as the skill acquired, and the ability manifested to use the knowledge in the examination of drugs and chemicals.

During the second term, instruction is given daily for ten weeks in General Chemistry. By a combination of the lecture, recitation, and quiz systems, the modern theories are taught and a more intimate knowledge of the elements and their compounds, with properties and uses of each, is obtained. The text-book used is Remsen's Briefer Course.

In the Senior year the first half-term is devoted to Quantitative Analysis, with special reference to the needs of the practical pharmacist. The following analyses, or their equivalents, are executed by the students:

1. Volumetric determination of Chlorine.
2. Acidimetry.
3. Alkalimetry.
4. Volumetric Determination of Iron.
5. Salt, Na, Cl.
6. Copper Sulphate, CuO, SO_3, H_2O.
7. Bronze Sn, Cu, Pb, Fe, Zn.

8. Hydro-di-sodic Phosphate, P_2O_5.
9. Limestone, complete analysis.
10. Mineral Water, complete analysis.

Subsequently three months are devoted to the study of Organic Chemistry, special attention being given to officinal preparations. The aim is to teach the theory of the formation, structure and relations of organic bodies rather than the storing of the mind with complicated symbols and reactions.

Toxicology occupies the last part of the second term of the Senior year. Instruction is given by lectures. Laboratory work is an important part of this course, the facts of the text-books being verified by actual experiments on the lower animals and on organic tissue.

A metallurgical cabinet, a pharmaceutical collection constantly increasing, a suite of specimens illustrative of chemistry applied to the arts, and a collection of manufactured chemicals, afford excellent facilities for practical study in this department.

PHYSICS.

The course in physics includes class-room work daily throughout the Junior year, and laboratory work one afternoon a week during the second term of that year.

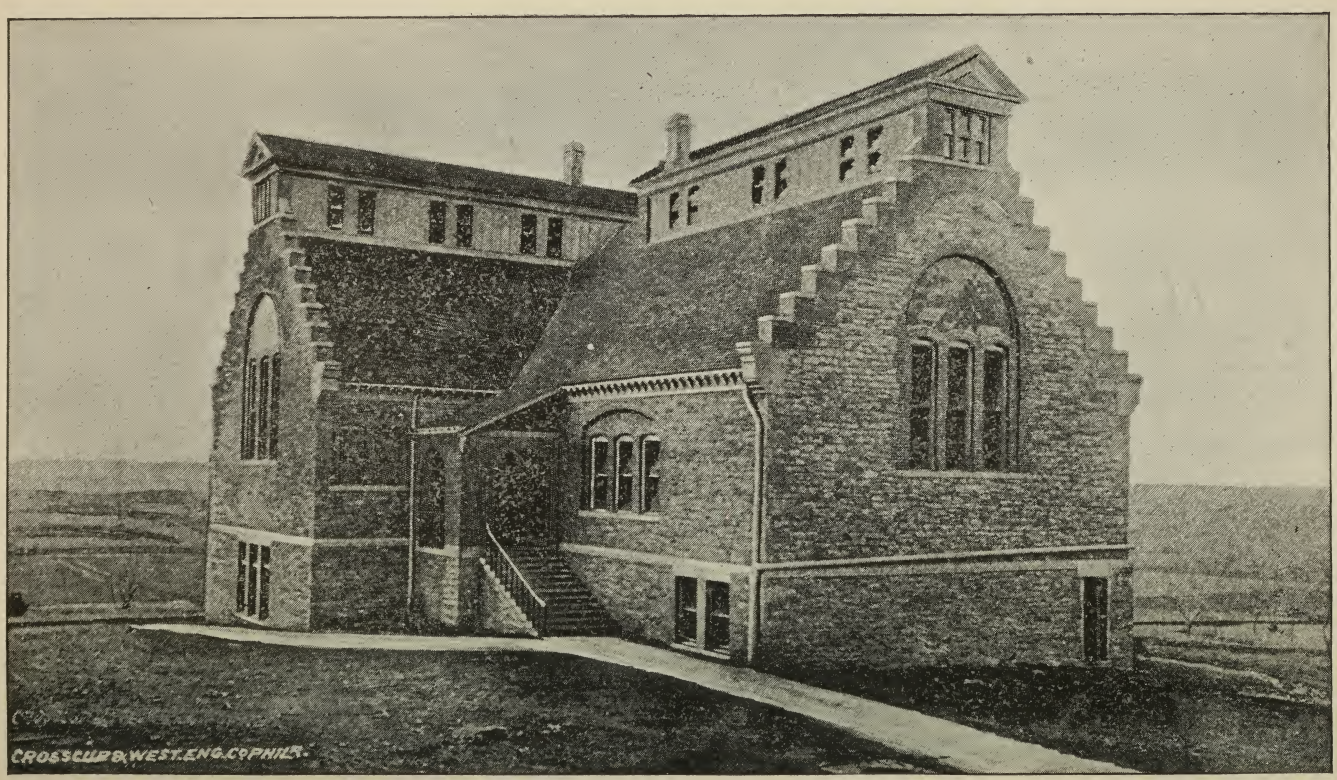
The class-room work for the first term consists of lectures and recitations on the general subject of Physics with experimental demonstrations; and for the second term it consists of lectures and recitations upon special topics bearing more or less upon practical Pharmacy; such as the theory and use of the microscope and the analytical balance, specific gravity, thermometry, calorimetry, saccharimetry, spectrum analysis, the metric system, and the care and handling of batteries. Crystallography occupies three-fifths of the second term.

The aim of the laboratory work is to train the student in such physical manipulation as is of direct importance in pharmaceutical work.

MISCELLANEOUS INFORMATION.

REQUIREMENTS FOR GRADUATION.

The degree of Ph. G. (Graduate in Pharmacy) will be given to such students as complete the above course, and pass a satisfactory examination upon the same: *Provided*, That no degree shall be conferred until the candidate shall present satisfactory testimonials showing that he has had two years of *practical experience* in Pharmacy. This *apprenticeship*



CHEMISTRY BUILDING.

must be had in the actual drug business, and may either *precede* or *follow* the course of study prescribed in the University. It is, however, recommended as in every way more desirable, that the practical work herein required shall precede the theoretical work of the class-room and of the University laboratories.

The work and study of a student in this department leave no time for employment in a drug store while attending college.

POST-GRADUATE COURSE IN PHARMACY.

A Post-Graduate Course, including more advanced work in Botany, Materia Medica, Pharmacy, Mineralogy, Organic Chemistry, and the various branches of Organic Analysis, is offered to any who can avail themselves of it. The main object of this course is to lead to original investigation.

EXAMINATIONS.

Examinations will be held at the end of each term upon the work of that term. These term examinations are held by the Faculty, and are generally written. At the end of the course, examinations will be held by the Faculty in connection with the Board of Examiners in Pharmacy, in such manner as may hereafter be prescribed.

FEES.

Non-residents of the State are required to pay a fee of $25 per annum. In the case of non-residents of the State, also, students who complete the work of this department in less than one year (unless one year shall have been taken in some other college of pharmacy), a double fee will be required.

A graduating fee of five dollars is required of *all* students. No charge is made for the diploma.

A deposit of from ten to fifteen dollars per term is required of *all* students to cover use of material and loss and breakage in the laboratories. At the end of each term all the material returned in good order will be credited to the student, and any balance remaining will be refunded.

Students in Pharmacy will have the privileges of the University library, and of the various collections in Zoölogy and Botany, and all advantages possessed by other students in the University.

EXPENSES.

Price of board cannot well be stated in advance. It depends largely upon rates of rent, help employed, the cost of provisions, and the demands of the student. Perhaps the *average* cost, including rooms, light and fuel, may be placed at $4 per week. Some persons who furnish plain rooms and good plain food, receive boarders at $3.50 or even $3 per week. Students who require extra accommodations pay higher rates. Day board in private families may be obtained for about $3 per week.

Day board in clubs varies according to the economy practiced, from $1.50 to $2.25 per week. On this plan, a company of students appoints a steward or a committee to arrange terms with a competent housekeeper, to buy provisions as needed, to keep a list of rooms for rent in the vicinity, and to collect from the membership the estimated cost in advance for each week. These students generally furnish their own rooms, and provide lights, fuel, etc. An unfurnished room rents for about $2 per month.

Those who can supply the furniture for rooms and the provisions for the table from home, can rent small houses or parts of houses, and thus board for very little cost in money.

All requests for further information should be addressed to the Dean of the Department or to the Chancellor, State University, Lawrence, Kansas.

PREPARATORY MEDICAL COURSE.

The charter of the University authorizes and requires the establishment of a Department of Medicine. It is hoped that this may be accomplished in the near future. As leading to it, a course of studies nearly related to the departments of Pharmacy, Chemistry, and Natural History, and including Materia Medica, Human Physiology, Comparative Anatomy (dissections), etc., has been arranged. This course is accepted by all the leading medical colleges of the West as the first year of a three-years course, and students passing a satisfactory examination here will be admitted to the second year in those colleges on certificate of the Faculty of this University.

ADMISSION.

Students will be admitted to the Preparatory Medical Course who are ready for admission to the Freshman class in all English studies.

COURSE OF STUDIES.

FIRST TERM.

Elementary Chemistry (*a*).
Qualitative Analysis (*b*).
Physiology (*b*).
Pharmacy and Materia Medica.
Comparative Anatomy.

SECOND TERM.

General Chemistry (*a*).
Physiological Chemistry (*a*).
Urinary Analysis (*b*).
Botany (*b*).
Materia Medica (*a*).
Toxicology (*b*).

PHARMACEUTICAL SOCIETY.

This Society was organized in December, 1886, by the students and professors of the department, for the purpose of mutually assisting each other in the study of the sciences especially applied to the art of pharmacy, and in the practical applications of the same and for friendly intercourse.

It holds its meetings weekly every Friday afternoon at 2:30. At this time subjects of pharmaceutical interest are presented by the members present, papers are read and discussed bearing upon subjects of current interest in pharmaceutical and chemical circles.

The students of the department are expected to attend these meetings, and during the sessions of the Society they are excused from laboratory work.

This Society has been a means of stimulating to original investigations and of bringing together the students of both Junior and Senior courses. It forms a valuable supplement to the regular course of study.

The Society has a reading room, in which it has a number of pharmaceutical journals, both from this country and abroad.

ALUMNI ASSOCIATION.

JNO. W. ROOT, Ph.G., '88, Pueblo, Col..... *President.*
A. J. SMITH, Ph.G., '87, Leavenworth..... *First Vice-President.*
W. P. BROWN, '88, Leavenworth..... *Second Vice-President.*
H. L. RAYMOND, Ph.G., '86, Lawrence..... *Secretary.*
W. S. DICK, Ph.G., '87, Lawrence..... *Treasurer.*
E. R. RANKIN, Ph.G., '88, Topeka.....
H. M. HERROLD, Ph.G., '88, Kansas City, Mo..... } *Executive Board.*

ALUMNI.

Class of 1886.

Edward Bayliss Fox.
Harry Legate Raymond, Ph.G.
Carl Lewis Wyler, Ph.G.

Class of 1887.

Harry Perry Applebaugh, Ph.G.
Charles C. Dailey, Ph.G.
John Henry Deford, Ph.G.
William Scott Dick, Ph.G.
Claude Britton Highbargin.
Clarence Remsen Hoadley.
Corydon Endsley Lindley, Ph.G.
Samuel Watson Lindsey, Ph.G.
Martin O'Donnell, Ph.G.
Frank Prentiss, B.S., Ph.G.
Charles Loyal Sexton.
Andrew Jackson Smith, Ph.G.
Thomas Herbert Wood, Ph.G.
Albert Frederick Wulfkühler, Ph.G.

Class of 1888.

Frank Lincoln Abbey, Ph.G.
William Clarence Albach, Ph.G.
William Pierson Brown.
Herbert M. Herrold, Ph.G.
George McLaren.
Robert James McClure.
Ernest Robert Rankin, Ph.G.
Mary Antoinette Rice.
John Williams Root, Ph.G.
Charles Borden Spencer.
Arthur Ellsworth Topping.
George Francis Weida.

DONATIONS

To the School of Pharmacy, May, 1888, to May, 1889.

TO THE LIBRARY.

American Pharmaceutical Association, 1 volume.
Massachusetts Pharmaceutical Association, 1 volume.
Pennsylvania Pharmaceutical Association, 9 volumes.

PERIODICALS FOR THE READING-ROOM.*

WEEKLIES.

Chemist and Druggist (Pharmaceutical Society), London.
Medical and Surgical Reporter, Philadelphia.
Pharmaceutical Journal and Transactions (Pharmaceutical Society), London.

SEMI-MONTHLIES.

Pharmaceutical Record, New York.

MONTHLIES.

American Druggist, New York.
Brooklyn Medical Journal, Brooklyn N. Y.
American Drug Clerks' Journal, Chicago, Ills.
Indiana Druggist, Indianapolis, Ind.
Medical Record, Kansas City, Mo.
Meyer Bros.' Druggist, St. Louis, Mo.
National Druggist, St. Louis, Mo.
New England Druggist, Boston, Mass.
Pharmaceutical Era, Detroit, Mich.
Pharmaceutische Rundschau, New York.
Rocky Mountain Druggist, Denver, Colo.
Western Druggist, Chicago, Ill.
Western Drug Record, Kansas City, Mo.

FOR THE PHARMACEUTICAL LABORATORY.

From Dr. R. J. Brown, Leavenworth, Kas., a set of glass-stoppered display bottles.

* Donated by the publishers, unless otherwise stated.

SCHEDULE, SCHOOL OF PHARMACY, FOR THE UNIVERSITY YEAR 1889-90.

JUNIOR COURSE.

	9–10 A.M.	10–11 A.M.	11–12 A.M.	12–1 P.M.	2–6 P.M.
First Term.....	Physics.	Pharmacy. Materia Medica.	Introduc. Chemistry (*a*). Qualitative Analysis (*b*).	Latin.	Laboratory Work in Chemistry and Pharmacy.
Second Term...	Laboratory Work.	Physics. Crystallography.	Chemistry (*a*). Botany (*b*).	Pharmacy. Materia Medica.	Laboratory Work in Pharmacy and Physics.

SENIOR COURSE.

	9–10 A.M.	10–11 A.M.	11–12 A.M.	12–1 P.M.	2–3 P.M.	3–4 P.M.	4–5 P.M.	5–6 P.M.
First Term.....	Pharmacy. Materia Medica.	Laboratory Work.	Structural Botany (*a*). Microscopy (*b*).		Laboratory Work in Quantitative Analysis (*a*).			
					Physiological Chemistry (*b*)			Physiology (*b*).
Second Term...	Pharmacy. Materia Medica.	Urinary Analysis (*a*) Work in Toxicology and on Thesis (*b*).		Organic Chem. Toxicology.	Examination of Foods and Medicines (*a*). Thesis (*b*).			

LZP
7/90

THE UNIVERSITY OF KANSAS.

CATALOGUE

OF THE

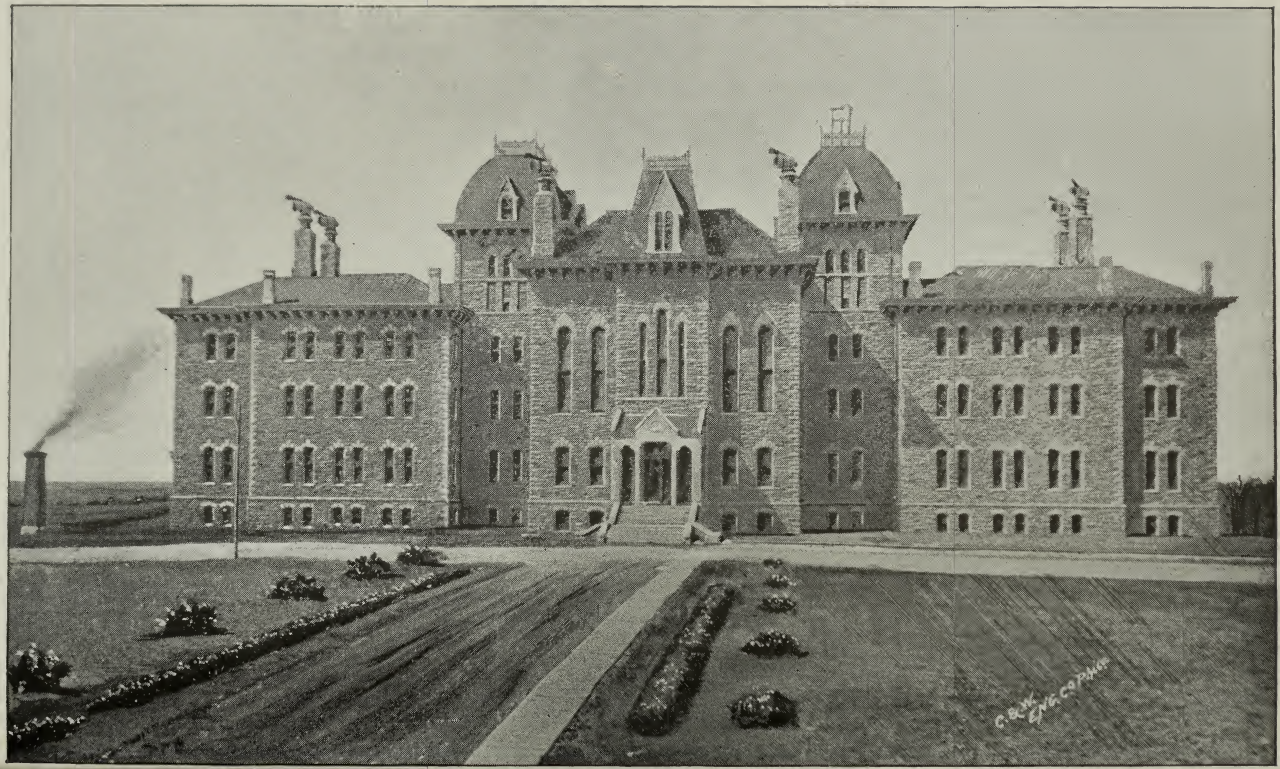
SCHOOL OF PHARMACY,

FOR THE COLLEGIATE YEAR 1889-90.

ALSO,

ANNOUNCEMENTS FOR 1890-91.

TUITION FREE.



THE UNIVERSITY OF KANSAS.

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KANSAS PUBLISHING HOUSE: CLIFFORD C. BAKER, STATE PRINTER.
1890.

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1890.

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ANNOUNCEMENTS FOR 1890.

Jan. 6, Monday—Christmas recess ends.
Jan. 24 to 31, Friday to Friday, inclusive—Semi-annual Examinations.
Feb. 3, Monday—Second term begins.
April 3, Thursday—Second half-term begins.
April —, —, —, Thursday, Friday and Monday—Spring recess.
May 29 to June 5, Thursday to Thursday, inclusive—Annual Examinations.
June 8, Sunday, 8 P.M., Baccalaureate Sermon.
June 9, Monday, 10 A.M.—Anniversary Exercises, School of Pharmacy. 3 P.M.—Business meeting of Alumni Association, School of Pharmacy. 10 P.M.—Annual Reunion and Banquet of Alumni Association.
June 12, Thursday, 10 A.M.—Commencement Exercises.

(SUMMER VACATION OF THIRTEEN WEEKS.)

Sept. 10, Wednesday—First term begins.
Sept. 10, 11, Wednesday and Thursday—Examination of candidates for admission.
Sept. 12, Friday—General Assembly of Students, and Annual Address, in University Hall, at 10 A.M.
Nov. 13, Thursday—Second half-term begins.
Nov. —, —, —, Thursday, Friday and Monday—Thanksgiving recess.

(CHRISTMAS RECESS, SATURDAY, DEC. 20, TO MONDAY, JAN. 5, INCLUSIVE.)

ORGANIZATION.

By act of the Legislature at the session of 1885, it was provided as follows:

"That the Board of Regents of the State University be directed to establish, without delay, a chair of Pharmacy in said institution."

It was further enacted at the same session of the Legislature that —

"The Board of Regents of the State University shall appoint five registered pharmacists, who shall hold office for the term of four years, to conduct the examination of all graduates in pharmacy, and sign the certificates of graduation."

In accordance with this action of the Legislature, the Board of Regents, at its meeting in June, 1885, elected Lucius E. Sayre, Ph. G., of Philadelphia, a practical Pharmacist, and an experienced instructor, late Professor of Pharmacy in the Woman's Medical College, and Instructor in Materia Medica in the Philadelphia College of Pharmacy, and author of "Organic Materia Medica and Pharmacal Botany," as Professor of Pharmacy, and ordered the organization of the department at the beginning of the fall term, September 9th, 1885. At a subsequent meeting the Board of Examiners in Pharmacy was appointed.

Further provision was made for the University by the Legislature of the State in an act approved February 25, 1889, and entitled "An act to provide for the government and maintenance of the University of Kansas." This act, repealing all former legislation bearing upon the same topics, continues the name of THE UNIVERSITY OF KANSAS, and its location at LAWRENCE, in DOUGLAS COUNTY. It further enacts —

That the University shall provide the means of acquiring a general and thorough knowledge in literature, the sciences, and the arts; and also provide students who desire to pursue special studies, with the most approved appliances, authorities and instruction to insure the greatest knowledge and research in any special branch of learning connected with university education; that it shall consist of three departments: I. A Department of the Literatures; II. A Department of the Sciences; III. A Department of the Arts; and that within these three Departments there shall be established such Schools as the Regents in connection with the Faculty may order. The same law further enacts that the government of the University shall be vested in a board of seven Regents, six of whom shall be appointed by the Governor and confirmed by the Senate, and whose term of office shall be four years; that the Board of Regents shall be a body corporate, under the name of "The Regents of the University of Kansas," and as such may sue and

be sued, make contracts, and hold and transfer property, both real and personal, for the University.

The Board of Regents is also invested with the power to elect a Chancellor, who shall be the chief officer of the University; to appoint professors, assistants, tutors; to increase and diminish their number as the interest of the University may require; to employ a janitor, librarian, and such other officers and employés as in their judgment the needs of the University require.

The Board is also empowered to confer such degrees and grant such diplomas as are usually conferred and granted by other institutions of learning.

THE UNIVERSITY OF KANSAS.

BOARD OF REGENTS.

HON. D. A. VALENTINE	Clay Center	Term expires 1891
HON. C. R. MITCHELL	Geuda Springs	" " 1891
HON. M. P. SIMPSON	McPherson	" " 1891
HON. JOEL MOODY	Mound City	" " 1893
HON. C. S. GLEED	Topeka	" " 1893
HON. W. C. SPANGLER	Lawrence	" " 1893

F. H. SNOW, *ex officio* member of the Board.

OFFICERS OF THE BOARD.

F. H. SNOW ..... *President.*
W. C. SPANGLER ..... *Vice-President.*
C. S. GLEED ..... *Secretary.*
C. R. MITCHELL ..... *Auditor.*

OFFICERS OF THE UNIVERSITY.

F. H. SNOW ..... *Chancellor.*
R. K. MOODY ..... *Secretary and Treasurer.*
W. J. HAUGHAWOUT ..... *General Agent for University Lands.*
E. F. CROCKER ..... *Supt. of Buildings and Grounds.*

COMMITTEES OF THE BOARD.

Instruction.
C. S. GLEED.
W. C. SPANGLER.
JOEL MOODY.

Library and Apparatus.
W. C. SPANGLER.
C. S. GLEED.
D. A. VALENTINE.

Finance.
C. R. MITCHELL.
JOEL MOODY.
M. P. SIMPSON.

Buildings, Grounds, and Supplies.
F. H. SNOW.
W. C. SPANGLER.
C. S. GLEED.

University Lands and Endowments.
D. A. VALENTINE.
C. R. MITCHELL.
M. P. SIMPSON.

Reports and Publications.
M. P. SIMPSON.
C. R. MITCHELL.
F. H. SNOW.

BOARD OF EXAMINERS.

C. D. BARNES ..... *Abilene.*
M. L. STONE ..... *Wamego.*
J. P. ALLEN ..... *Wichita.*

ALTERNATES.

C. L. BECKER ..... *Ottawa.*
R. J. BROWN ..... *Leavenworth.*
GEORGE LEIS ..... *Lawrence.*

FACULTY.

FRANCIS HUNTINGTON SNOW, PH. D., PRESIDENT,
Botany.

LUCIUS ELMER SAYRE, PH. G., DEAN,
Pharmacy and Materia Medica.

DAVID HAMILTON ROBINSON, PH. D.,
Latin.

EDGAR HENRY SUMMERFIELD BAILEY, PH. D.,
Chemistry and Toxicology.

LUCIEN IRA BLAKE, PH. D.,
Physics.

LEWIS LINDSAY DYCHE, A. M., M. S.,
Anatomy and Physiology.

ADELAIDE RUDOLPH, A. B.,
Assistant in Latin.

WILLIAM SUDDARDS FRANKLIN, B. S.,
Assistant in Physics.

EDWARD CURTIS FRANKLIN, B. S.,
Assistant in Chemistry.

GEORGE FRANCIS WEIDA,
Assistant in Pharmacy.

WILLIAM CHASE STEVENS, B. S.,
Assistant in Botany.

GERTRUDE A. CROTTY, B. S.,
Assistant in Physiology.

STUDENTS.

POST-GRADUATE.

Hoadley, Clarence R.,	*Lawrence.*

SENIOR CLASS.

Adams, Hiram Alfred,	*Ottawa.*
Boaz, Volney Tate,	*Girard.*
Classen, John David,	*Newton.*
Fiegenbaum, Benjamin F.,	*Clay Center.*
Hackett, Leroy Sales,	*Cottonwood Falls.*
Kelly, Samuel James,	*Olathe.*
Kennedy, John Howard,	*Lawrence.*
Phillips, Carl,	*Lawrence.*
Pollock, Robert,	*Lawrence.*
Smelser, Edgar William,	*Emporia.*
Thomas, Arthur William,	*Wakefield.*
Youngberg, John Edward,	*Ottawa.*

Seniors, 12.

JUNIOR CLASS.

Amos, Wilbur S.,	*Baldwin.*
Baker, De Forest,	*Milford.*
Edge, William Thomas,	*Leavenworth.*
Grabe, Lorena Eva,	*Beatrice, Neb.*
Gray, Carry Bornett,	*Leavenworth.*
Gibson, William Wallace,	*Wakeeney.*
Hedges, Florence Luella,	*Grinnell, Iowa.*
Kennerly, James Wilson,	*South Mound.*
Müller, Peter,	*Mulvane.*
Netherton, Samuel Oliver,	*Eureka.*
Peckham, John Guy,	*Seneca.*
Priestly, Carrie,	*Baldwin.*
Pugh, William P.,	*Cottonwood Falls.*
Schopflin, Edward Francis,	*Kansas City, Kas.*
Simmons, Joel Thomas,	*Phillipsburg.*
Smith, Albert,	*Parsons.*
Wixson, Mernis W.,	*Clifton.*
White, Homer Albert,	*Eudora.*

Juniors, 18.

PREPARATORY MEDICAL.

Case, Ermine C.,	*Kansas City, Mo.*
Harvey, Grant,	*Wakarusa.*
Holloway, Charles D.,	*Willow Springs.*

SCHOOL OF PHARMACY.

TERMS OF ADMISSION.

The candidate must pass an entrance examination in the following studies:

1. Arithmetic, including the Metric System.
2. History of the United States.
3. Geography, Descriptive and Physical.
4. English Grammar and Composition.
5. Constitution of the United States.

ADMISSION BY CERTIFICATE.

By authority of the Board of Regents, the Faculty will admit students into the School of Pharmacy upon the certificate of any president, superintendent, or principal of any college, academy, or other incorporated institution of learning, or of any high school, showing that such students have completed all the above-named preparatory studies. Principals of private schools and academies, and of the public high and grammar schools of the State, whose work is known and acceptable to the Faculty, may, by correspondence with the Chancellor, arrange for *home examinations* upon the subjects (or any of them) which are required for admission to the School of Pharmacy.

In all cases, if the first term's work in the University develop the fact that the student's preparation has been imperfect, the right of the professor in charge is reserved to require further and satisfactory examination.

COURSE OF STUDY.

The following course of study is intended to give students ample preparation for the practice of pharmacy, and to lay the foundation for special work in the lines of Analytical Chemistry and the examination of foods and medicines.

Although much more extended than usual in schools of Pharmacy, the studies in this course are only such as are of advantage to the pharmacist. By the chemical training he receives, the student is fitted to be intrusted with certain kinds of analytical work, especially in communities where the amount of analytical work is insufficient to demand the presence of a professional chemist. The course consists of two years of nine months each.

The morning hours, from 9 to 1 o'clock, are occupied mostly by lectures, recitations, and microscopical work, while laboratory work in Physics, Chemistry, and Pharmacy is assigned mostly to the afternoon, from 2 to 6 P. M., while the evening is left for private study.

JUNIOR YEAR.

FIRST TERM.

Materia Medica, twice a week.
Pharmacy, three times a week.
Physics.
Latin.
Elementary Chemistry (*a*).
Qualitative Analysis (*b*).

SECOND TERM.

Pharmacy, twice a week.
Materia Medica, three times a week.
General Chemistry, half-term (*a*).
Botany, half-term (*b*).
Physics, with metric system.
Laboratory Practice in Pharmacy, (manufacturing.)
Crystallography, twice a week.
Practice in Physical Laboratory.

SENIOR YEAR.

FIRST TERM.

Pharmacy, twice a week.
Materia Medica, three times a week.
Structural Botany, half-term (*a*).
Quantitative Pharmaceutical Analysis (*a*).
Physiology, half-term (*b*).
Physiological Chemistry, half-term (*b*).
Microscopic Examination of Drugs.

SECOND TERM.

Pharmacy, three times a week.
Materia Medica, twice a week.
Organic Chemistry, half-term (*a*).
Toxicology, half-term (*b*).
Examination of Foods and Medicines.
Urinary Analysis.
Preparation of Thesis.

PHARMACY.

JUNIOR COURSE.

The instruction to Junior students in practical pharmacy and pharmaceutical chemistry consists of lectures and laboratory practice. The course is based upon the United States Pharmacopœia. A comparison

of this standard with the pharmacopœias used in different countries is made. The study of specific gravity and of different systems of weights and measures receives attention. The operations in pharmacy are then divided in such manner as to form a graded course of study. The simplest treatment to which the drug is subjected during the process of preparation for manipulation, dispensing and administration is first considered. For example: The process of pulverization, the methods of grinding, powdering and sifting are given, both in the ordinary operations of the store and in those of the manufacturer. Subsequently by successive steps, are taken up the higher forms of pharmaceutical work, such as solution, decantation, elutriation, filtration. Next in order follow such processes as maceration, infusion, percolation; subsequently, processes requiring heat, such as evaporation, distillation, and sublimation; finally, precipitation, crystallization, and granulation.

The Galenical preparations are then treated of, starting with the simpler ones, as waters, and extending to the more complex, as fluid extracts, and oleo resins. Extemporaneous pharmacy follows, and receives careful attention.

The beginning of the second term is devoted to the consideration of inorganic substances used in medicine. These are classified according to their chemical relations, as follows: The elementary substances, such as chlorine, bromine, and iodine; the alkalies and alkaline earths; and finally, the salts of the metals, such as iron, zinc, lead, mercury, etc. The presentation of this portion of the course is entirely limited to the pharmaceutical bearings of these substances, but brings into use at the same time the knowledge the student has acquired in chemistry.

In the latter part of this course the organic substances used in medicine are taken up and discussed briefly, as an introduction to the Senior course.

SENIOR COURSE.

A review of the important features of the Junior course is given at the beginning of the year, followed by lectures devoted more particularly to pharmaceutical chemistry. The subsequent lectures embrace a more careful study of the organic substances used in medicine, their constituents, their chemical and physical characteristics, and the application of these in the preparations of the United States Pharmacopœia. Each drug is considered individually, but drugs and their preparations are so grouped as to make prominent a study of the proximate principles. For instance, those containing gums and mucilage will be associated on the one hand, and those containing proximate principles on the other. Subsequently the organic substances obtained from the animal kingdom are considered.

While the drugs and preparations of the U. S. P. claim principal place as the more important, due attention is paid to non-officinal ones, and in both cases great care is given to the detection of impurities by the officinal and other methods of testing.

LABORATORIES.

The laboratory, especially fitted up for pharmaceutical work, is in the Chemistry building. It is well appointed, each student having a desk to himself, which is well provided with apparatus for his special work. Adjoining the laboratory is the store-room, which is so arranged and supplied that the student can provide himself with drugs and chemicals during the hours designated for laboratory work. In this laboratory the student by his manipulations follows the lectures in pharmacy. In the Junior course he makes a number of Galenical preparations. Prescription-reading and compounding are also studied from original prescriptions of different physicians from various parts of the United States. Three thousand such prescriptions are now on hand in the department, and others will be added from time to time. The advantage of such practice under competent instruction must at once be apparent.

In the Senior course attention is paid to the examination of foods and medicines; the microscopical examination of drugs with section mounting; physiological chemistry, and urinary analysis. Practice is also given in the assay of important drugs. The last weeks of the course are devoted to original research in the preparation of a thesis, under the direction of the instructor in charge. The investigation may consist of a chemical plant analysis, the trial of methods of assay, the exposure of adulterations, or research in any direction approved by the Faculty. In all cases the literature of the subject must be read up as far as possible, and references given.

The chemical, physical, and botanical laboratories are well appointed for their special work. There is a special laboratory for each of the two kinds of chemical work — qualitative and quantitative analysis. The physics department has eight rooms set apart for different kinds of physical study. There are two botanical laboratories, one for systematic and the other for microscopic (or histological) botany. These laboratories are open at all hours of the day, and are so situated with reference to the lecture rooms, that the Professors in charge of the departments can be at any time consulted by the students.

MATERIA MEDICA.

JUNIOR COURSE.

The first part of the course comprises a general survey of the subject. The list of important organic drugs is examined, their officinal name, geographical and botanical origin, part of the plant used, and their medical properties, are pointed out, as also the various methods in which drugs are classified for study.

In order more fully to understand the subject, some time is devoted to the consideration of botany.

This is then followed by the study of the vegetable drugs, classified according to their botanical relations; the more important characteristics are pointed out, and the crude drugs are placed in the hands of the student for examination, which, while developing the powers of observation, insures ready recognition.

SENIOR COURSE.

The lectures to Senior students in this school are devoted more especially to the physical and structural characteristics of drugs. The classification adopted presents, in the first place, the roots and underground stems. These are then subdivided according to their relations as to special physical properties, those of a more cellular structure being placed in the one class, those of a fibrous and woody character in another. These, with intermediate forms, are so subdivided and arranged that their characteristics may be the more readily studied. Adulterations receive due consideration. No effort is spared to make the student so familiar with the officinal and important drugs, that his recognition of them is instantaneous and reliable.

The medicinal properties of drugs and their therapeutical and physiological action are then specially dwelt upon.

BOTANY.

The instruction in Botany is the same as that given to Freshmen and Sophomores in the Collegiate department. Two weeks are devoted to the review of a text-book, for the purpose of fixing the elementary principles of the science, including the necessary botanical nomenclature. Eight weeks are then devoted to laboratory work, in which the student gives his chief attention to the wild phænogamous plants of the surrounding region. Accuracy of observation and skill in description are thus acquired, making the correct classification of plants a comparatively easy undertaking. In connection with this part of the work, each student is required to prepare a small herbarium of at least forty species of plants, special prominence being given to the medicinal species.

The foregoing combination of text-book, laboratory work, and field-practice, is intended to give such familiarity with the elementary principles of systematic botany, that a student of average ability will acquire the power, with the aid of a good manual, to determine for himself any species of wild plant with which he may be brought into contact.

In the second year, a half-term of ten weeks is devoted to advanced work in structural botany. By means of the compound microscope

the student is made acquainted with the internal structure of plants of all classes, from the simplest protophytes to the most complicated phænogams. The botanical laboratory is supplied with fifteen compound microscopes of the best manufacture, with magnifying powers ranging from 75 to 1,500 diameters, and one of these instruments is at the service of each student for two hours daily.

CHEMISTRY.

In the first term of the Junior year, during the first ten weeks, instruction is given in Theoretical and Elementary Chemistry. The student has the opportunity of becoming familiar with the nomenclature of the science, with the simpler chemical formulæ and reactions, and with the methods used for solving problems in stochiometry. At the same time, the most important elements are discussed, and the characteristic salts of each are studied.

Having passed in this subject, during the second half of this term the student will devote at least twelve hours per week to the study of Qualitative Analysis. He is furnished with the necessary apparatus and chemicals, and follows a systematic course of work in the laboratory. Lectures are given at intervals upon this work. At the close of the course, the examination, which is a practical one, is so conducted that the student must demonstrate his ability to analyze an unknown mixture. The time occupied by the course is not so much considered as the skill acquired, and the ability manifested to use the knowledge in the examination of drugs and chemicals. The text-book used is Bailey's Qualitative Analysis.

During the second term, instruction is given daily for ten weeks in General Chemistry. By a combination of the lecture, recitation, and quiz systems, the modern theories are taught and a more intimate knowledge of the elements and their compounds, with properties and uses of each, is obtained. The text-book used is Remsen's Briefer Course.

In the Senior year the first-half-term is devoted to Quantitative Pharmaceutical Analysis, with special reference to the needs of the practical pharmacist. The following analyses, or their equivalents, are executed by the students.

GRAVIOMETRIC.

1. Water in a Potassium Carbonate.
2. Ammonia Ferrous Sulphate, (FeO).
3. Barium Chloride, (Ba, bl, HeO).
4. Hydro-di-sodic Phosphate, (P_2O_5).
5. Potassium Bichromate, (Cr_2O_3).
6. Calcite, (CaO).

VOLUMETRIC.

7. Acidimetry.
8. Alkalimetry.
9. Determination of Iron.
10. Determination of Chlorine.
11. Determination of Free Iodine.
12. Determination of Copper.

The text-book used is Sexton's Outlines of Quantitative Analysis.

Subsequently three months are devoted to the study of Organic Chemistry, special attention being given to officinal preparations. The aim is to teach the theory of the formation, structure and relations of organic bodies rather than the storing of the mind with complicated symbols and reactions. The text-book used is Remsen's Organic Chemistry.

Toxicology occupies the last part of the second term of the Senior year. Instruction is given by lectures. Laboratory work is an important part of this course, the facts of the text-books being verified by actual experiments on the lower animals and on organic tissue.

Students are expected to pass the examinations in one subject, before they are admitted to other classes in the chemical course.

A metallurgical cabinet, a suite of specimens illustrative of chemistry applied to the arts, and a collection of manufactured chemicals, afford excellent facilities for practical study in this department.

PHYSICS.

The course in physics includes class-room work daily throughout the Junior year, and laboratory work one afternoon a week during the second term of that year.

The class-room work for the first term consists of lectures and recitations on the general subject of Physics, with experimental demonstrations; and for the second term it consists of lectures and recitations upon special topics bearing more or less upon practical Pharmacy; such as the theory and use of the microscope and the analytical balance, specific gravity, thermometry, calorimetry, saccharimetry, spectrum analysis, the metric system, and the care and handling of batteries. Crystallography occupies three-fifths of the second term.

The aim of the laboratory work is to train the student in such physical manipulation as is of direct importance in pharmaceutical work.

SNOW HALL OF NATURAL HISTORY.

MISCELLANEOUS INFORMATION.

DRUG-STORE EXPERIENCE is essential to success in the pursuit of pharmacy, and cognizance of this fact is taken in the requirements for graduation. While the training obtained in the drug store can be acquired nowhere else, it is impracticable to carry on such work while the student is attending college. The custom of occupation while attending lectures is not only detrimental to mental culture, but is physically overtaxing. Such work limits too greatly the time for study, and frequently prevents the student from giving a faithful and prompt attention to the instruction of the class-room and the laboratory.

It is held by some that the actual experience gained in the drug store is a sufficient compensation for the consequent deficiencies in college work, the unwarranted assumption being that the student receives plenty of practice and manual training by such an arrangement.

The conclusion that drug-store experience and the work of the pharmaceutical laboratory of the school are similar, and that one can be substituted for the other, is an unwarranted one, for the following reasons: In the former, the attention in the way of special instruction is necessarily limited to the leisure of the one in charge, whose superintendence is also demanded in other directions; while in the latter, the sole aim is to impart instruction, and nothing but the work of instruction presses on those in charge. The scope of the former is limited to the peculiar situation and circumstances of that one store, and it can therefore at best give only a limited range of manual training; while the aim of the latter is to familiarize the student with all operations met with in any store, and therefore the manual training is not circumscribed by narrow limits.

Students in Pharmacy will recite with collegiate classes in Botany, Physics, Chemistry, and other subjects which are common to the various departments of the University.

Students in Pharmacy will have the privileges of the University library, and of the various collections in Zoölogy, Botany, and Chemistry, and all advantages possessed by other students of the University.

REQUIREMENTS FOR GRADUATION.

The degree of Ph.G. (Graduate in Pharmacy) will be given to such students as complete the above course, and pass a satisfactory examination upon the same: *Provided*, That no degree shall be conferred until the candidate shall present satisfactory testimonials showing that he has had two years of *practical experience* in Pharmacy. This *apprenticeship* must be had in the actual drug business, and may either *precede* or *follow* the course of study prescribed in the University. It is, however, recommended as in every way more desirable, that the practical work herein required shall precede the theoretical work of the class-room and of the University laboratories. The work and study of a student

in this department leave no time for employment in a drug store while attending college.

POST-GRADUATE COURSE IN PHARMACY.

A Post-Graduate Course, including more advanced work in Botany, Materia Medica, Pharmacy, Mineralogy, Organic Chemistry, and the various branches of Organic Analysis, is offered to any who can avail themselves of it. The main object of this course is to lead to original investigation.

EXAMINATIONS.

Examinations will be held at the end of each term upon the work of that term. These term examinations are held by the Faculty, and are generally written. At the end of the course, examinations will be held by the Faculty in connection with the Board of Examiners in Pharmacy, in such manner as may hereafter be prescribed.

FEES.

Non-residents of the State are required to pay a fee of $25 per annum. In the case of non-residents of the State, also students who complete the work of this school in less than one year (unless one year shall have been taken in some other college of pharmacy), a double fee will be required.

A graduating fee of five dollars is required of *all* students. No charge is made for the diploma.

A deposit of from ten to fifteen dollars per term is required of *all* students to cover use of material and loss and breakage in the laboratories.

EXPENSES.

Price of board cannot well be stated in advance. It depends largely upon rates of rent, help employed, the cost of provisions, and the demands of the student. Perhaps the *average* cost, including rooms, light and fuel, may be placed at $4 per week. Some persons who furnish plain rooms and good plain food, receive boarders at $3.50 or even $3 per week. Students who require extra accommodations pay higher rates. Day board in private families may be obtained for about $3 per week.

Day board in clubs varies, according to the economy practiced, from $1.50 to $2.25 per week. On this plan, a company of students appoints a steward or a committee to arrange terms with a competent housekeeper to buy provisions as needed, to keep a list of rooms for rent in the vicinity, and to collect from the membership the estimated cost in advance for each week. These students generally furnish their own rooms, and provide lights, fuel, etc. An unfurnished room rents for about $2 per month.

Those who can supply the furniture for rooms and the provisions

for the table from home, can rent small houses or parts of houses, and thus board for very little cost in money.

All requests for further information should be addressed to the Dean of the Department, or to the Chancellor, State University, Lawrence, Kansas.

PREPARATORY MEDICAL COURSE.

The charter of the University authorizes and requires the establishment of a Department of Medicine. It is hoped that this may be accomplished in the near future. As leading to it, a course of studies nearly related to the departments of Pharmacy, Chemistry, and Natural History, and including Materia Medica, Human Physiology, Comparative Anatomy (dissections), etc., has been arranged. This course is accepted by leading medical colleges as the first year of a three-years course,* and students passing a satisfactory examination here will be admitted to the second year in those colleges on certificate of the Faculty of this University.

ADMISSION.

Students will be admitted to the Preparatory Medical Course who are ready for admission to the Freshman class in all English studies.

COURSE OF STUDIES.

FIRST TERM.

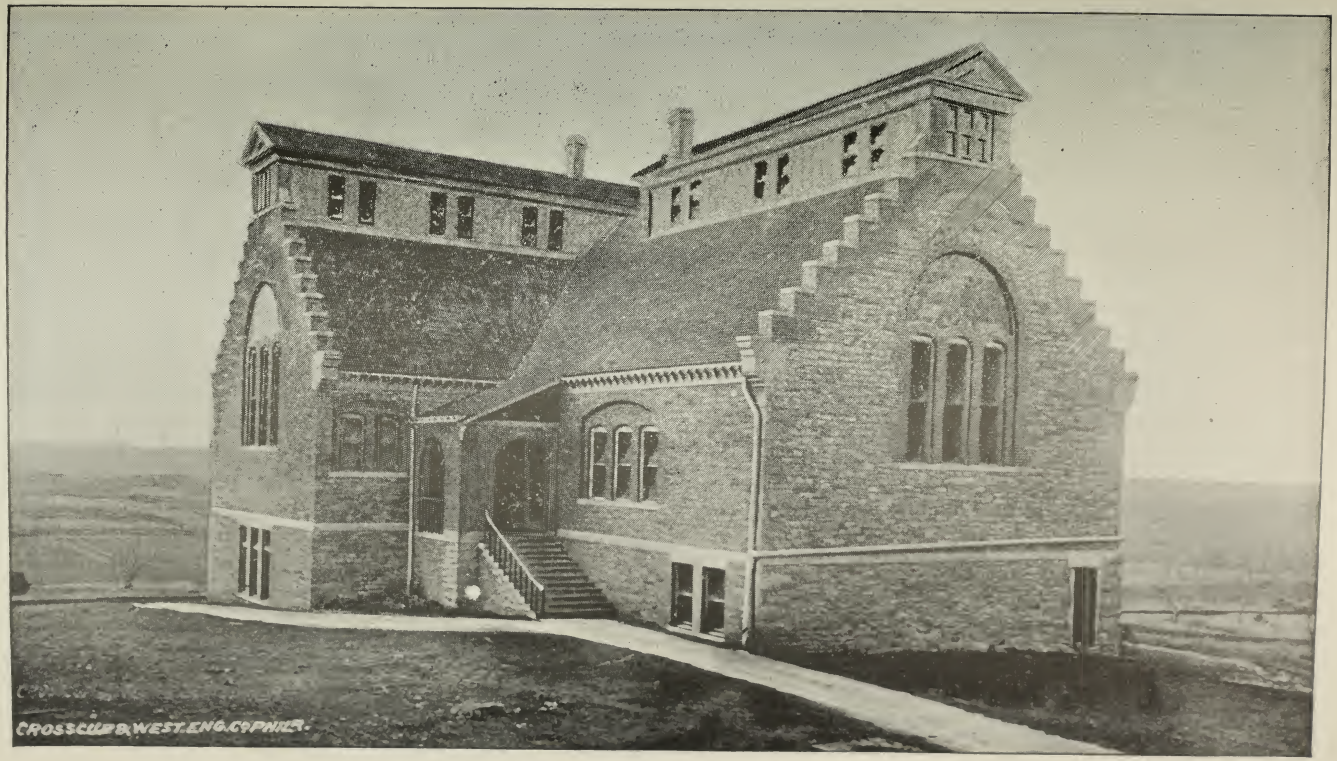
Elementary Chemistry (*a*).
Qualitative Analysis (*b*).
Physiology (*b*).
Pharmacy and Materia Medica.
Comparative Anatomy.

SECOND TERM.

General Chemistry (*a*).
Physiological Chemistry (*a*).
Urinary Analysis (*b*).
Botany (*b*).
Materia Medica (*a*).
Toxicology (*b*).

*Negotiations are in progress with Eastern medical colleges. Jefferson Medical College, of Philadelphia, states:

"A student who does faithfully the work cut out for him in your Medical course will be admitted to our second-year class."



CHEMISTRY BUILDING.

PHARMACEUTICAL SOCIETY.

This Society was organized in December, 1886, by the students and professors of the department, for the purpose of mutually assisting each other in the study of the sciences especially applied to the art of pharmacy, and in the practical applications of the same, and for friendly intercourse.

It holds its meetings weekly every alternate Friday, at 8 P.M. At this time subjects of pharmaceutical interest are presented by the members present, papers are read and discussed bearing upon subjects of current interest in pharmaceutical and chemical circles. The students of the department are expected to attend these meetings.

This Society has been a means of stimulating to original investigations, and of bringing together the students of both Junior and Senior courses. It forms a valuable supplement to the regular course of study.

The Society has a reading room, in which it has a number of pharmaceutical journals, both from this country and abroad.

ALUMNI ASSOCIATION.

L. W. SNEPP, Ph. G., '89, Olathe.....*President.*
T. H. WOOD, Ph. G., '87, Armourdale.....*First Vice-President.*
F. L. ABBEY, Ph. G., '88, Newton.....*Second Vice-President.*
H. L. RAYMOND, Ph. G., '86, Lawrence.....*Secretary.*
E. W. MORRIS, Ph. G., '89, Emporia.....*Treasurer.*
W. S. DICK, Ph. G., '87, Lawrence.....
ROBERT PARKER, Ph. G., '89, Grinnell, Ia..... } *Executive Board.*

ALUMNI.

Class of 1886.

Edward Bayless Fox.
Harry Legate Raymond, Ph. G.
Carl Lewis Wyler, Ph. G.

Class of 1887.

Harry Perry Applebaugh, Ph. G.
Charles C. Dailey, Ph. G.
John Henry Deford, Ph. G.
William Scott Dick, Ph. G.
Claude Britton Highbargin, Ph. G.
Clarence Remsen Hoadley, Ph. G.
Corydon Endsley Lindley, Ph. G.
Samuel Watson Lindsey, Ph. G.
Martin O'Donnell, Ph. G.
Frank Prentiss, B. S., Ph. G.
Charles Loyal Sexton, Ph. G.
Andrew Jackson Smith, Ph. G.
Thomas Herbert Wood, Ph. G.
Albert Frederick Wulfkühler, Ph. G.

Class of 1888.

Frank Lincoln Abbey, Ph. G.
William Clarence Albach, Ph. G.
William Pierson Brown.
Herbert M. Herrold, Ph. G.
George McLaren.
Robert James McClure.
Ernest Robert Rankin, Ph. G.
Mary Antoinette Rice.
John Williams Root, Ph. G.
Charles Borden Spencer.
Arthur Ellsworth Topping.
George Francis Weida.

Class of 1889.

Bradford Loring Hill, Ph. G.
Willard Bartholow Hilton, Ph. G.
George Frederick Kaiser.
Edward William Morris, Ph. G.
Robert Parker, Ph. G.
John Nesbit Scott, Ph. G.
Loren Wade Snepp, Ph. G.

DONATIONS

To the School of Pharmacy, 1889.

PERIODICALS FOR THE READING-ROOM.*

WEEKLIES.

Chemist and Druggist (Pharmaceutical Society), London.
Medical and Surgical Reporter, Philadelphia.
Pharmaceutical Journal and Transactions (Pharmaceutical Society), London.

SEMI-MONTHLIES.

Pharmaceutical Record, New York.

MONTHLIES.

American Druggist, New York.
The Registered Pharmacist, Chicago, Ills.
Indiana Druggist, Indianapolis, Ind.
Medical Record, Kansas City, Mo.
Meyer Bros.' Druggist, St. Louis, Mo.
National Druggist, St. Louis, Mo.
New England Druggist, Boston, Mass.
Pharmaceutical Era, Detroit, Mich.
Pharmaceutische Runschau, New York.
Rocky Mountain Druggist, Denver, Colo.
Western Druggist, Chicago, Ills.
Western Drug Record, Kansas City, Mo.

* Donated by the publishers, unless otherwise stated.

THE LIBRARY OF THE
APR 15 1921
UNIVERSITY OF ILLINOIS.

SCHEDULE, SCHOOL OF PHARMACY, FOR THE UNIVERSITY YEAR 1890-91.

JUNIOR COURSE.

	9–10 A.M.	10–11 A.M.	11–12 A.M.	12–1 P.M.	2–6 P.M.
First Term.....	Physics.	Pharmacy. Materia Medica.	Introduc. Chemistry (*a*). Qualitative Analysis (*b*).	Latin.	Laboratory Work in Chemistry and Pharmacy.
Second Term...	Laboratory Work.	Physics. Crystallography.	Chemistry (*a*). Botany (*b*).	Pharmacy. Materia Medica.	Laboratory Work in Pharmacy and Physics.

SENIOR COURSE.

	9–10 A.M.	10–11 A.M.	11–12 A.M.	12–1 P.M.	2–3 P.M.	3–4 P.M.	4–5 P.M.	5–6 P.M.
First Term.....	Pharmacy. Materia Medica.	Laboratory Work.	Structural Botany (*a*). Microscopy (*b*).		Laboratory Work in Quantitative Analysis (*a*).			
					Physiological Chemistry (*b*).		Physiology (*b*).	
Second Term...	Pharmacy. Materia Medica.	Urinary Analysis (*a*). Work in Toxicology and on Thesis (*b*).		Organic Chem. Toxicology.	Examination of Foods and Medicines (*a*). Thesis (*b*).			

THE LIBRARY
OF THE
UNIVERSITY OF ILLINOIS

SCHOOL OF PHARMACY

OF THE

UNIVERSITY OF KANSAS.

CATALOGUE

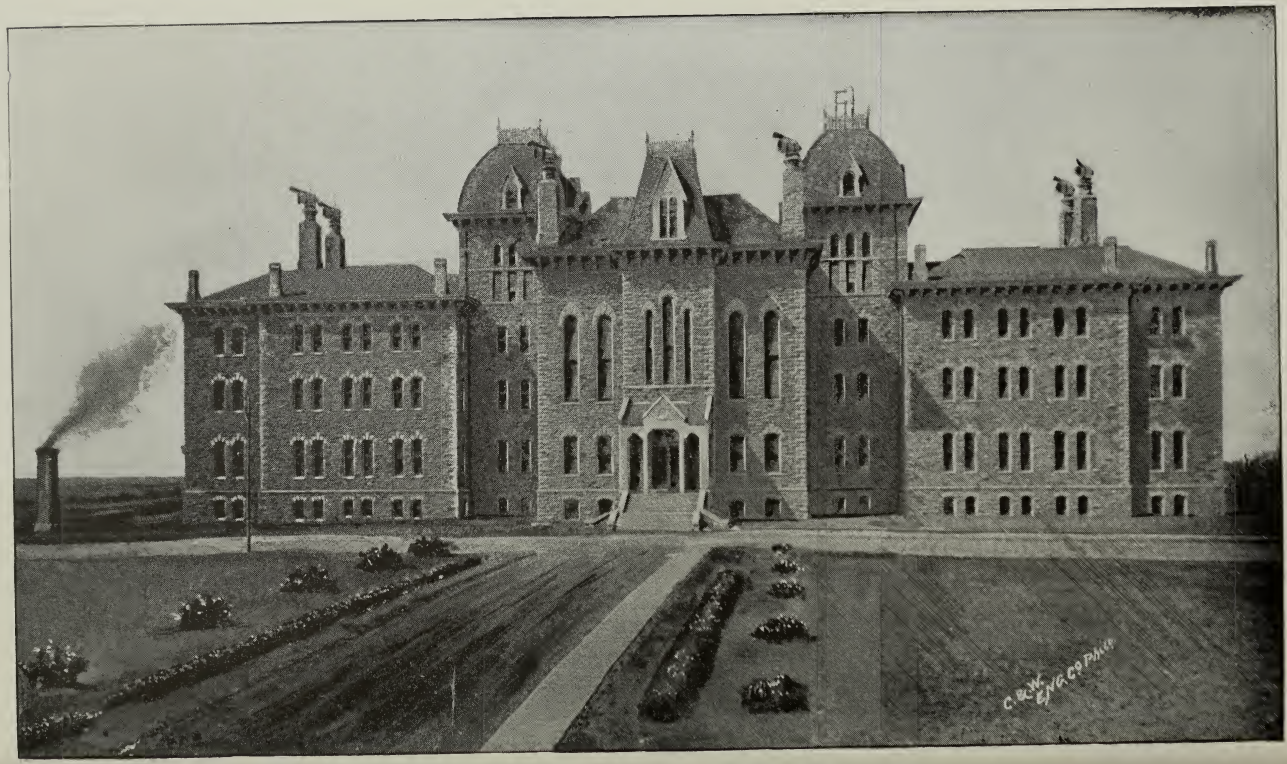
FOR THE

COLLEGIATE YEAR 1891-'92.

ALSO,

ANNOUNCEMENTS FOR 1892-'93.

TUITION FREE.



MAIN BUILDING

SCHOOL OF PHARMACY

OF THE

UNIVERSITY OF KANSAS.

CATALOGUE

FOR THE

COLLEGIATE YEAR 1891-'92.

ALSO,

ANNOUNCEMENTS FOR 1892-'93.

TOPEKA.
THE HAMILTON PRINTING COMPANY:
EDWIN H. SNOW, State Printer.
1892.

1892.

JULY.

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THE UNIVERSITY OF KANSAS.

ANNOUNCEMENTS FOR 1892-'93.

Sept. 7, Wednesday — First term begins.

Sept. 7, 8, Wednesday and Thursday — Examination of candidates for admission, and presentation of certificates from High Schools, Academies and other institutions.

Sept. 9, Friday — General Assembly of Students, and Annual Address, in University Hall, at 10 A. M.

Sept. 14, Wednesday — Law School begins.

Nov. 10, Thursday — Second half-term begins.

Nov. 24, 25, 28, Thursday, Friday, and Monday — Thanksgiving recess.

Dec. 13, Tuesday, 8 P. M. — Christmas Concert by School of Music.

Dec. 17, Saturday — Christmas recess begins.

Jan. 2, Monday — Christmas recess ends.

Jan. 23-28, Monday to Saturday, inclusive — Semi-annual Examinations.

Jan. 30, Monday — Second term begins.

March 29, Wednesday — First half-term ends.

March 30 to April 3, Thursday, Friday, and Monday — Spring recess.

April 4, Tuesday — Second half-term begins.

May 29 to June 3, Monday to Saturday, inclusive — Annual Examinations.

June 4, Sunday — Baccalaureate Sermon.

June 5-7 — Class-day and Commencement Exercises.

ORGANIZATION AND GOVERNMENT.

By act of the Legislature at the session of 1885, it was provided as follows:

"That the Board of Regents of the State University be directed to establish, without delay, a chair of Pharmacy in said institution."

It was further enacted at the same session of the Legislature that —

"The Board of Regents of the State University shall appoint five registered pharmacists, who shall hold office for the term of four years, to conduct the examination of all graduates in Pharmacy, and sign the certificates of graduation."

In accordance with this action of the Legislature, the Board of Regents, at its meeting in June, 1885, elected Lucius E. Sayre, Ph. G., of Philadelphia, a practical pharmacist, and an experienced instructor, late Professor of Pharmacy in the Woman's Medical College, and Instructor in Materia Medica in the Philadelphia College of Pharmacy and author of "Organic Materia Medica and Pharmacal Botany," as Professor of Pharmacy, and ordered the organization of the Department at the beginning of the fall term, September 9, 1885. At a subsequent meeting the Board of Examiners in Pharmacy was appointed.

Further provision was made for the University by the Legislature of the State in an act approved February 25, 1889, and entitled "An act to provide for the government and maintenance of the University of Kansas." This act, repealing all former legislation bearing upon the same topics, continues the name of THE UNIVERSITY OF KANSAS, and its location at LAWRENCE, in DOUGLAS COUNTY. It further enacts —

That the University shall provide the means of acquiring a general and thorough knowledge in literature, the sciences, and the arts; and also provide students who desire to pursue special studies with the most approved appliances, authorities and instruction to insure the greatest knowledge and research in any special branch of learning connected with university education; that it shall consist of three departments: I. A Department of the Literatures; II. A Department of the Sciences; III. A Department of the Arts; and that within these three Departments there shall be established such Schools as the Regents in connection with the Faculty may order. The same law further enacts that the government of the University shall be vested in a board of seven Regents, six of whom shall be appointed by the Governor and confirmed by the Senate, and whose term of office shall be four years; that the Board of Regents shall be a body corporate, under the name of "The Regents of the University of Kansas," and as such may sue and

be sued, make contracts, and hold and transfer property, both real and personal, for the University.

The Board of Regents is also invested with the power to elect a Chancellor, who shall be the chief officer of the University; to appoint professors, assistants, tutors; to increase and diminish their number as the interest of the University may require; to employ a janitor, librarian, and such other officers and emyloyés as in their jndgment the needs of the University require.

The Board is also empowered to confer such degrees and grant such diplomas as are usually conferred and granted by other institutions of learning.

BOARD OF REGENTS.

F. H. SNOW, LL. D.,
PRESIDENT.

HON. JOEL MOODY	Mound City	Term expires	1893
HON. C. S. GLEED	Topeka	" "	1893
HON. W. C. SPANGLER	Lawrence	" "	1893
HON. D. A. VALENTINE	Clay Center	" "	1895
HON. C. R. MITCHELL	Geuda Springs	" "	1895
HON. C. F. SCOTT	Iola	" "	1895

OFFICERS OF THE BOARD.

F. H. SNOW ..... *President.*
W. C. SPANGLER ..... *Vice-President.*
C. F. SCOTT ..... *Secretary.*
C. R. MITCHELL ..... *Auditor.*

OFFICERS OF THE UNIVERSITY.

F. H. SNOW ..... *Chancellor.*
R. K. MOODY ..... *Secretary and Treasurer.*
W. J. HAUGHAWOUT ..... *General Agent for University Lands.*
T. R. BREESE ..... *Supt. of Buildings and Grounds.*

COMMITTEES OF THE BOARD.

F. H. SNOW, *ex-officio* Chairman of all Committees.

Instruction:
C. F. SCOTT.
D. A. VALENTINE.
W. C. SPANGLER.

Library and Apparatus:
W. C. SPANGLER.
C. F. SCOTT.
JOEL MOODY.

Finance:
C. R. MITCHELL.
JOEL MOODY.
D. A. VALENTINE.

Buildings, Grounds, and Supplies:
C. S. GLEED.
JOEL MOODY.
W. C. SPANGLER.

University Land and Endowments:
JOEL MOODY.
C. S. GLEED.
C. R. MITCHELL.

Reports and Publications:
D. A. VALENTINE.
C. F. SCOTT.
C. S. GLEED.

THE FACULTY.

FRANCIS HUNTINGTON SNOW, PH. D., LL. D., PRESIDENT,
Botany.

LUCIUS ELMER SAYRE, PH. G., DEAN,
Pharmacy and Materia Medica.

DAVID HAMILTON ROBINSON, PH. D.,
Latin.

EDGAR HENRY SUMMERFIELD BAILEY, PH. D.,
Chemistry and Toxicology.

LUCIEN IRA BLAKE, PH. D.,
Physics.

LEWIS LINDSAY DYCHE, A. M., M. S.,
Anatomy and Physiology.

HANNAH OLIVER, A. M.,
Assistant in Latin.

First Assistant in Physics. (To be appointed.)

MARTIN EVERETT RICE,
Second Assistant in Physics.

EDWARD CURTIS FRANKLIN, B. S.,
Assistant in Chemistry.

SAMUEL R. BOYCE, PH. C.,
Assistant in Pharmacy.

WILLIAM CHASE STEVENS, B. S.,
Assistant in Botany.

GERTRUDE ANNA CROTTY, B. S.,
Assistant in Physiology.

STUDENTS.

SENIOR CLASS.

Allen, Maude Beatrice,	*Lawrence.*
Combs, Robert,	*Cambridge.*
Day, Harold,	*Canton.*
DeDonder, Achille,	*St. Marys.*
Diggs, Fred Le Porte,	*Lawrence.*
Eicholtz, Alexander J.,	*Minneapolis.*
McClung, Clarence Erwin,	*Columbus.*
McCreight, Marlin Samuel,	*Oskaloosa.*
Peairs, Howard Allen,	*Lawrence.*
Priestley, Carrie,	*Baldwin.*
Rankin, Alexander Victor,	*Lawrence.*
Rankin, Herbert John,	*Lawrence.*
Youngberg, John Edwards,	*Ottawa.*

Seniors, 13.

JUNIOR CLASS.

Arnold, Edgar Campbell,	*North Topeka.*
Bartlett, Charles Eugene, jr.,	*Stockton.*
Bennett, Charles Grandison,	*Hutchinson.*
Bergman, Louis House,	*Lawrence.*
Brown, Chase Winhood,	*Ottawa.*
Drake, Della Caroline,	*Lawrence.*
Ernst, Henry,	*Lawrence.*
Girard, Delphis,	*St. Joseph, Kas.*
Gould, Allen Eugene,	*Kansas City, Kas.*
Kelling, William Bernard,	*Garnett.*
King, Berlin Orange,	*Plainville.*
La Master, Hazen Gillette,	*Gardner.*
Lieurance, Calvin Delbert,	*Neosho Falls.*
Limerick, Winifred May,	*Winfield.*
McCandless, Robert Ewing,	*Holton.*
Newman, Frederick Joseph,	*Leonardville.*
Norberg, George Benjamin,	*Cedarville.*
Parker, Orvin Herbert,	*Arkansas City.*
Perry, William Tecumseh,	*Belleville.*
Poinsett, William Bailey,	*Lansing.*

Replogle, Erastus D.,	*Cottonwood Falls.*
Sale, Richard Channing,	*Wakarusa.*
Seiler, Nelson Hughes,	*Lawrence.*
Shannon, Ogden Kelly,	*Eastland, Texas.*
Woodward, Brinton Darlington,	*Lawrence.*
Watt, Robert Æneas,	*Carbondale.*
Wallick, Ellsworth Frank,	*Olathe.*
Youngberg, Alfred,	*Ottawa.*

Juniors, 28.

FIRST-YEAR MEDICAL COURSE.

Allshouse, Frank Blair,*	*North Topeka.*
Goldberg, Allie Hyman,*	*Hutchinson.*
Jaquith, James Herbert,	*Americus.*
Pierson, Carl,	*Lawrence.*
Sulzbacher, Bruno,	*Las Vegas, N. M.*
Walker, Andrew James,	*Tribune.*

First-Year Medical, 6.

*Special work in second year.

SCHOOL OF PHARMACY.

TERMS OF ADMISSION.

The candidate must pass an entrance examination in the following studies:

1. Arithmetic, including the metric system.
2. History of the United States.
3. Geography, descriptive and physical.
4. English Grammar and Composition.
5. Civil Government.*

Admission by Certificate.—By authority of the Board of Regents, the Faculty will admit students into the School of Pharmacy upon the certificate of any president, superintendent or principal of any college, academy, or other incorporated institution of learning, or of any high school, showing that such students have completed all the above-named preparatory studies. Principals of private schools and academies, and of the public high and grammar schools of the State, whose work is known and acceptable to the Faculty, may, by correspondence with the Chancellor, arrange for *home examinations* upon the subjects (or any of them) which are required for admission to the School of Pharmacy.

In all cases, if the first term's work in the University develop the fact that the student's preparation has been imperfect, the right of the professor in charge is reserved to require further and satisfactory examination.

THE EDUCATIONAL SCOPE OF THE SCHOOL.

The graduate of this department is assured a thorough qualification for the most responsible positions in pharmacy, and given a well-grounded preparation for service as a manufacturing chemist or as an analyst. First and foremost, the School insists that the training shall be thorough and practical. Its course, requiring, as it does, a steady discipline of the intellectual and executive powers, offers decided advantages over those courses in pharmacy where the student's immediate contact with the circle of instruction is but occasional.

LENGTH OF COURSE.

The course of this School is similar to that offered in other universities of best standing, notably, Ann Arbor and the University of Wisconsin. It embraces two years of nine months each.

*Townsend's Seventy Lessons, or its equivalent.

Experience has fully demonstrated that shorter courses leave those who pursue them seriously crippled, especially for the higher departments of the profession. Short cuts here, as elsewhere, produce superficial cramming, which never proves a safe foundation for future advancement. This is shown to be true by the demand of progressive educators for higher standards and longer courses.

SPECIAL STUDENTS.

Persons of good character, who desire for reasons satisfactory to the Chancellor or Faculty to pursue some special line of study, without becoming candidates for a degree, are allowed to enter as special students. No entrance examinations are required of such special students further than may be necessary to satisfy the instructors under whom the studies may be taken.

Special students are subject to the same regulations as regular students with regard to the quality of work performed, and attendance at recitations and examinations, but not as to the number of studies to be pursued. The Chancellor or the Faculty may at any time deprive any special student of his privileges if it appear that he is abusing or neglecting them.

JUNIOR YEAR.

FIRST TERM.

Pharmacy.—Remington's Practice and Sayre's Essentials of Pharmacy. The work consists of lectures and recitations upon the subjects of specific gravity, the different systems of weights and measures, problems in parts by weight, alligation, and the metric system as applied to Pharmacy. Particular attention is paid to the study of the formulæ of the different pharmacopœial preparations, the consideration being from a theoretical stand-point, and directed toward the action of different menstrua upon drugs of various constitution. Second half. Every day, 11 to 12. Mr. Boyce.

Pharmacognosy.—At this time lectures are given upon the crude drugs and chemicals of the pharmacopœia. The student is given the official title, common name, German name, medicinal and physical properties, dose, and, in the case of organic drugs, also the origin and habitat. To illustrate graphically the distribution and source of the crude drugs, maps and plans convenient for ready reference, to impress upon the mind of the students the points made in the lectures, and to enable them to become familiar with the appearance and characteristics of the drug, then are placed in their hands. This list embraces about 300 drugs, and, in addition, access may be had to large collections of rare and less-important medicinal substances. Tuesday and Thursday, 9 to 10. Mr. Boyce.

Chemistry.—Bloxam's Chemistry. In the first half-term of the Junior year instruction is given in theoretical and elementary Chemis-

try. The student has the opportunity of becoming familiar with the nomenclature of the science, with the simpler chemical formulæ and reactions, and the methods used for solving problems in stoichiometry. At the same time the more important elements are discussed, and the characteristics salts, especially those of pharmaceutical importance, are studied. By a combination of the lecture and quiz systems the modern theories are taught, and a more intimate knowledge of the elements and their compounds, with properties and uses of each, is obtained. Every day, 10 to 12. Mr. FRANKLIN.

Qualitative Analysis.—Bailey's Qualitative Analysis. During the second half of this term the student will devote at least 12 hours per week to the study of Qualitative Analysis. He is furnished with the necessary apparatus and chemicals, and follows a systematic course of work in the laboratory. Lectures are given at intervals upon this work. At the close of the course, the examination, which is a practical one, is so conducted that the student must demonstrate his ability to analyze an unknown mixture. Monday, Tuesday, and Wednesday, 2 to 6. Professor BAILEY.

Latin.—Latin Grammar of Pharmacy and Medicine, D. H. Robinson. This important and much-abused subject receives careful and thorough attention. Professor Robinson has written a book embracing the material necessary for a pharmacist's education, without the introduction of any superfluous matter. The manner of presentation is such that the interest is awakened, and the usually dull subject is made thoroughly interesting. Every day during first term, 12 to 1. Miss OLIVER.

SECOND TERM.

Physics.—Essentials of Medical Physics, F. T. Brockway, M. D. The class-room work for the term consists of lectures and recitations on the general subject of Physics, with experimental demonstrations, and upon special topics bearing more or less upon practical pharmacy, such as the theory and use of the microscope and the analytical balance, specific gravity, thermometry, calorimetry, saccharimetry, spectrum analysis, the metric system, and the care and handling of batteries.

The aim of the laboratory work is to train the student in such physical manipulation as is of direct importance in pharmaceutical work. Class-room Monday, Wednesday, and Friday, 9 to 10; and laboratory work one afternoon each week. Professor BLAKE.

Pharmacy.—Patch's Laboratory Manual. Lectures, recitations, and laboratory practice. The instruction is a continuation of the work of the first term, especial prominence being given to practical application of the theories taught in the preceding lectures. Practice is given in the analysis of alcoholic liquors, estimation of acids and alkalies by specific gravity, and comparison with the tables of percentage and specific gravity of the pharmacopœia. The preparation of the official volumetric solutions, and their application to the estimation of iron, salts,

and other chemical compounds, is taught. This is followed by the manufacture of the scale salts of iron, syrups, and mucilages, the distillation of ethers, the preparation of galenicals, and the estimation of solubilities. Actual prescription work in the making of pills, suppositories, ointments, troches, etc., closes the practice in the pharmaceutical laboratory for the year. Lectures Monday, Wednesday, and Friday, 10 to 11; laboratory every day, 2 to 6. Mr. BOYCE.

Materia Medica.—Maisch's Organic Materia Medica. The first half-term completes the work of the preceding term, and is followed by the study of the physical properties of the more prominent official tinctures. The second half is devoted to a series of lectures and recitations upon the classification of medicinal substances from a botanical and physical stand-point. The lectures are illustrated by lantern slides and an excellent collection of photographs, as well as by herbarium specimens. Tuesday and Thursday, 10 to 11. Professor SAYRE and Mr. BOYCE.

Botany.—Gray's Manual. The instruction in Botany is the same as that given to Freshmen in the Collegiate Department. Two weeks are devoted to lectures upon the lower orders of plants. Eight weeks are then devoted to laboratory work, in which the student gives his chief attention to the wild phænogamous plants of the surrounding region. Accuracy of observation and skill in description are thus acquired, making the correct classification of plants a comparatively easy undertaking. In connection with this part of the work, each student is required to prepare a small herbarium of at least 40 specimens of plants, special prominence being given to the medicinal species.

The foregoing combination of text-book, laboratory work and field-practice is intended to give such familiarity with the elementary principles of systematic botany that a student of average ability will acquire the power, with the aid of a good manual, to determine for himself any species of wild plant with which he may be brought in contact. Every day during the second half-term, 11 to 12. Mr. STEVENS.

SENIOR YEAR.

FIRST TERM.

Pharmacy.—Remington's Practice and Sayre's Essentials. A review of the important features of the Junior course is given at the beginning of the year, followed by lectures devoted more particularly to pharmaceutical chemistry. The subsequent lectures embrace a more careful study of the organic substances used in medicine, their constituents, chemical and physical characteristics, and application in the preparations of the United States Pharmacopœia. Each drug is considered individually, but drugs and their preparations are so grouped as to make prominent a study of the proximate principles. For instance, those containing gums and mucilage will be associated on the one hand, and those containing proximate principles on the other

Subsequently, the organic substances obtained from the animal kingdom are considered.

In the second half of this term, laboratory work in drug assay, detection and quantitative estimation of adulterations and impurities, and standardization of pharmaceutical preparations, occupies every afternoon of the week. Recitations and lectures Tuesday and Thursday, 9 to 10; laboratory, 2 to 6. Professor SAYRE.

Materia Medica.—Maisch's Materia Medica. At the beginning of the term special stress is laid upon microscopical structure; this is followed by actual practice with the microscope, making and mounting sections of organic drugs. No effort is spared in making the students familiar with both external form and internal structure of the official substances under consideration. Professor SAYRE.

Structural Botany.—In the second year, a half-term of 10 weeks is devoted to advanced work in Structural Botany. By means of the compound microscope, the student is made acquainted with the internal structure of plants of all classes, from the simplest protophites to the most complicated phænogams. The botanical laboratory is supplied with about 40 compound microscopes of the best manufacture, with magnifying powers ranging from 75 to 1,500 diameters, and one of these instruments is at the service of each student for two hours daily.

Quantitative Pharmaceutical Analysis.—In the Senior year, the first half-term is devoted to the study of Quantitative Pharmaceutical Analysis, with special reference to the needs of the practical pharmacist. The aim is to secure accuracy in the results and careful habits in manipulation, rather than to have the student perform a large number of analyses.

The following analyses or their equivalents will be executed:

GRAVIOMETRIC.

Analysis of—	*For the determination of—*
1. Potassium carbonate	Water.
2. Ammonium-ferrous sulphate	FeO.
3. Barium chloride	Ba, Cl, H_2O.
4. Hydro-di-sodic phosphate	P_2O_5.
5. Potassium bichromate	Cr_2O_3.
6. Calcite ($CaCO_3$)	CaO.

VOLUMETRIC.

7. Acidimetry.
8. Alkalimetry.
9. Determination of iron.
10. Determination of chlorine.
11. Determination of free iodine.
12. Determination of copper.

G.W. ENGLE

SECOND TERM.

Pharmacy.—Remington's Practice and Sayre's Essentials. The lectures in this term embrace a more careful study of the organic substances used in medicine, their constituents, their chemical and physical characteristics, and the application of these in the preparations of the United States Pharmacopœia. Each drug is considered individually, but drugs and their preparations are so grouped as to make prominent a study of the proximate principles. For instance, those containing gums and mucilage will be associated on the one hand, and those containing proximate principles on the other. Subsequently the organic substances obtained from the animal kingdom are considered. While the drugs and preparations of the United States Pharmacopœia claim principal place as the more important, due attention is paid to non-officinal ones, and in both cases great care is given to the detection of impurities by the officinal and other methods of testing. Monday, Wednesday, and Friday, 10 to 11. Professor SAYRE.

Materia Medica and Therapeutics.—Potter's Materia Medica and Therapeutics. During this term the physiological action and therapeutic application of drugs are considered, and special lectures are given occasionally by local physicians, and the students receive all the advantages given to preparatory medical students. Professor SAYRE.

Organic Chemistry.—Remsen's Organic Chemistry. Lectures and recitations. First half of second term. Every day, at 12. Mr. FRANKLIN.

Physiological Chemistry.—Vaughn's Chemical Physiology and Pathology. Laboratory work and recitations supplementing the work in materia medica and therapeutics. In the laboratory chemical examination of the fluids and secretions of the body is made, and the digestive ferments are extracted, purified, and studied. The organic salts occurring in the body are also prepared. Every afternoon during the first half-term, 2 to 6. Professor SAYRE and Mr. BOYCE.

Urinary Analysis.—Text-book same as above. The subject is taught by lectures and recitations, together with laboratory practice in the physiological and microscopical laboratories. Urine is studied in its normal condition and its constitutents estimated. Samples of pathological urine are secured through physicians and examined for abnormal constituents. During the second half-term, 2 to 6. Professor SAYRE and Mr. BOYCE.

Toxicology.—Instruction given by lectures and laboratory work. The instruction in the class-room is demonstrated in the laboratory by experiments on the lower animals and organic tissue. A large collection of the best works on this subject are placed at the student's disposal for reference. Every day during the last half-term, 12 to 1. Professor BAILEY.

Thesis.—This work embodies the results of research by the student

in the laboratory and library. The subject is to be selected before the end of the first half of this term; an outline of the proposed investigation is to be presented, with references to the literature, at the beginning of the second half-term; and the completed report or thesis is to be ready before the end of the term. For many subjects, the literary research may be made as valuable as the experimental investigation.

OPTIONAL STUDIES.

The studies named below may be taken by any graduate of this School, or others who are prepared for the work. They are advanced studies in the several departments, and the work is done with the regular advanced classes.

OFFERED BY THE DEPARTMENT OF PHARMACY.

1. Manufacture of artificial fruit essences and other compound ethers.
2. Drug assaying; standardization of crude drugs, and their preparations; and the valuation of chemicals.
3. Plant analysis; a systematic course from a chemical stand-point.
4. Analysis of foods; advanced work in physiological chemistry, estimating the value of such articles as butter, lard, coffee, flour, etc., and determination of adulterations.
5. Analysis of nostrums; determination of composition of articles with secret formulæ.
6. Original research; special investigation, requiring the service of more than one department in the University, can be arranged for by submitting the plan of work to the pharmacy faculty.

OFFERED BY THE DEPARTMENT OF CHEMISTRY.

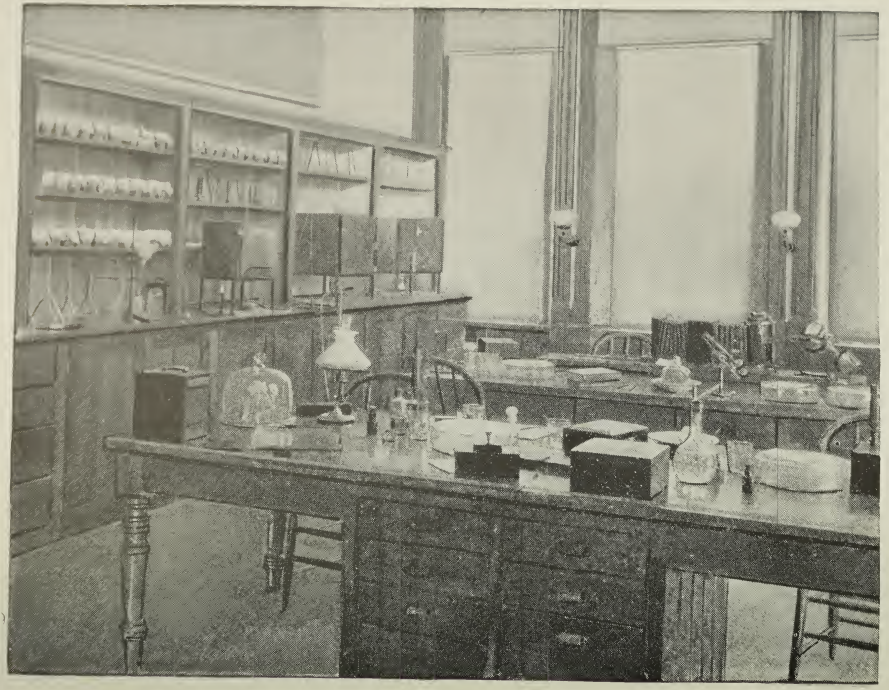
1. Chemistry of the hydrocarbons.
2. Advanced quantitative analysis, including water analysis, mineral-water analysis, and sugar analysis.
3. Blow-pipe analysis, and mineralogy.
4. Assaying of ores—gold, silver, etc.

OFFERED BY DEPARTMENT OF BOTANY AND ENTOMOLOGY.

1. Cryptogramic botany; advanced work in structural botany—lectures and laboratory work.
2. Physiological botany.
3. Histological botany.
4. Bacteriology; lectures and laboratory work.

OFFERED BY DEPARTMENT OF PHYSICS.

1. Electricity and magnetism; heat and light—lectures and experimental demonstration. Laboratory work four hours a week.



BACTERIOLOGICAL LABORATORY,

UNIVERSITY OF KANSAS.

UNIVERSITY EXTENSION.

[The following course is offered in connection with the School of University Extension.]

MEDICAL CHEMISTRY AND SANITARY SCIENCE.

BY L. E. SAYRE, PH.G.

1. INORGANIC SUBSTANCES USED IN MEDICINE. Introduction to the course. Relation of chemistry and sanitary science. Classification of inorganic substances from a chemical and medical stand-point. Physiological and therapeutic actions. Inorganic acids and metalloids.

2. INORGANIC SUBSTANCES (continued). Alkalies, alkaline earths, and metals; their combinations, and physiological and therapeutic action.

3. ORGANIC SUBSTANCES. Remedial agents from the vegetable and animal kingdom. Methods of extraction and isolation of active organic substances. How they should be regarded.

4. ORGANIC SUBSTANCES (continued). Classification from a botanical stand-point. The relation of this classification to therapeutic action.

5. ACTIVE AND POISONOUS PRINCIPLES. Methods of obtaining. Chemical and physical properties. History and properties of the alkaloids.

6. PROMINENT COMBINATION OF INORGANIC SUBSTANCES AS REMEDIAL AGENTS. By chemical combination and decomposition. Mechanical mixtures.

7. REMEDIAL COMBINATIONS FROM THE VEGETABLE KINGDOM. Extracts, tinctures, infusions, etc.

8. ALCOHOL AND ITS DERIVATIVES. Ether, chloroform, chloral, iodoform, etc.

9. ANTISEPTICS AND DISINFECTANTS. Definition of terms. Proper use of. Sanitation.

10. CARBOLIC ACID AND OTHER COAL-TAR PRODUCTS. Manufacture. Chemical and physical properties. Physiological action. Relation of chemical to therapeutic properties.

11. DIGESTIVE FERMENTS AND DIETETICS. Foods. Principles from the fluids of the body important in the digestive process. The relation of foods to these principles.

12. GENERAL SUMMARY. Relation of remedial agents to sanitary science. The pharmacopœia. The dispensatories.

(For particulars, correspond with Chancellor F. H. Snow.)

FIRST-YEAR MEDICAL COURSE.

The charter of the University authorizes and requires the establishment of a Department of Medicine. It is hoped that this may be accomplished in the near future. As leading to it, a course of studies nearly related to the departments of Pharmacy, Chemistry, and Natural History, and including materia medica, human physiology, comparative anatomy (dissections), etc., has been arranged. This course is accepted by leading medical colleges as the first year of a three-year course,* and students passing a satisfactory examination here will be admitted to the second year in those colleges, on certificate of the Faculty of this University.

ADMISSION.

Students will be admitted to the Preparatory Medical Course who are ready for admission to the Freshman class in all English studies.

COURSE OF STUDIES.

First Term.

Elementary Chemistry (*a*).
Qualitative Analysis (*b*).
Physiology (*b*).
Pharmacy and Materia Medica.
Comparative Anatomy.

Second Term.

General Chemistry (*a*).
Physiological Chemistry (*a*).
Urinary Analysis (*b*).
Botany (*b*).
Materia Medica (*a*).
Toxicology (*b*).

*Negotiations are in progress with Eastern medical colleges. Jefferson Medical College, of Philadelphia, states:

"A student who does faithfully the work cut out for him in your Medical Course will be admitted to our second-year class."

MISCELLANEOUS INFORMATION.

LABORATORY FACILITIES.

The student in this School has access to six distinct and well-arranged laboratories. These are: The pharmaceutical laboratory, the two chemical laboratories (for qualitative and quantitative analysis), microscopic laboratory, physical laboratory, and bacteriological laboratory. If the student desires, and has the time, he has the privilege of other laboratories, not mentioned, for other lines of study. For example, assaying, mineralogy, etc. He also has access to the collections in natural history, chemistry, mineralogy, and pharmacy. He has the advantage of an extensive library, such as is not found ordinarily, and such as can be furnished only by universities having extensive facilities.

DRUG-STORE EXPERIENCE

is essential to success in the pursuit of pharmacy, and cognizance of this fact is taken in the requirements for graduation. While the training obtained in the drug store can be acquired nowhere else, it is impracticable to carry on such work while the student is attending college. The custom of occupation while attending lectures is not only detrimental to mental culture, but is physically overtaxing. Such work limits too greatly the time for study, and frequently prevents the student from giving a faithful and prompt attention to the instruction of the class-room and the laboratory.

The opinion is held by some that the actual experience gained in the drug store is a sufficient compensation for the consequent deficiencies in college work, the unwarranted assumption being that the student receives plenty of practice and manual training by such an arrangement.

The conclusion that drug-store experience and the work of the pharmaceutical laboratory of the School are similar, and that one can be substituted for the other, is an unwarranted one, for the following reasons: In the former, the attention in the way of special instruction is necessarily limited to the leisure of the one in charge, whose superintendence is also demanded in other directions; while in the latter, the sole aim is to impart instruction, and nothing but the work of instruction presses on those in charge. The scope of the former is limited to the peculiar situation and circumstance of that one store, and it can therefore at best give only a limited range of manual training; while the aim of the latter is to familiarize the student with all operations met with in any store, and therefore the manual training is not circumscribed by narrow limits.

Students in pharmacy will recite with collegiate classes in botany, physics, chemistry, and other subjects which are common to the various departments of the University.

They are granted the privileges of the University library, and of the various collections in zoölogy, botany, and chemistry, and all advantages possessed by other students of the institution.

REQUIREMENTS FOR GRADUATION.

The degree of Ph. G. (Graduate in Pharmacy) will be given to such students as complete the above course, and pass a satisfactory examination upon the same: *Provided*, That no degree shall be conferred until the candidate shall present satisfactory testimonials showing that he has had two years of *practical experience* in pharmacy. This *apprenticeship* must be had in the actual drug business, and may either *precede* or *follow* the course of study prescribed in the University. It is, however, recommended as in every way more desirable that the practical work herein required shall precede the theoretical work of the class-room and of the University laboratories. The work and study of a student in this department leave no time for employment in a drug store while attending school.

POST-GRADUATE COURSE IN PHARMACY.

A post-graduate course, including more advanced work in botany, materia medica, pharmacy, mineralogy, organic chemistry and the various branches of organic analysis, is offered to any who can avail themselves of it. The main object of this course is to lead to original investigation. (See "Optional Studies.")

EXAMINATIONS.

Examinations will be held at the end of each term upon the work of that term. These term examinations are held by the Faculty, and are generally written. At the end of the course, examinations will be held by the Faculty, in connection with the State Board of Examiners in Pharmacy, in such manner as may hereafter be prescribed.

FEES.

Tuition in the School is *free* to Kansas students. The State supports the School, and looks for no pecuniary return from the students.

Non-residents of the State are required to pay a fee of $25 per annum. If such students complete the work of this School in less than two years (unless one year shall have been taken in some other college of pharmacy), a double fee will be required.

A graduating fee of $5 is required of *all* students. No charge is made for the diploma.

In the several laboratories charges are necessary to cover the actual expense for the material used and breakage of apparatus. Under the head of "Pharmacy," a fee of $20 is exacted, which secures admission to pharmaceutical, physiological and microscopical laboratories. The

preparations of the laboratory, at the end of the course, become the personal property of each student, and are of much value to him. The fee must be paid at the opening of the school year.

For physics, a deposit of $3 is required.

For botany in the second year, $1.

In the chemical laboratory the following deposits are payable in advance, to cover the cost of gas, chemicals, breakage, etc.:

Introductory chemistry (Junior)	$2 50
Qualitative analysis (Junior)	5 00
Quantitative analysis (Senior)	5 00

An account is kept with each individual, and any excess above actual consumption is returnable at the end of the year.

EXPENSES.

Day board in clubs varies, according to the economy practiced, from $1.50 to $2.25 per week. On this plan, a company of students appoints a steward or a committee to arrange terms with a competent housekeeper, to buy provisions as needed, to keep a list of rooms for rent in the vicinity, and to collect from the membership the estimated cost in advance for each week. These students generally furnish their own rooms, and provide lights, fuel, etc. An unfurnished room rents for about $2 per month.

Price of board cannot be stated in advance, as much depends upon the demands of the student. Table board ranges from $2 to $3.50 per week.

The total expenses incurred by students, including clothing, may be seen by reference to the table of statistics appended, which was prepared this year under the direction of Mr. Adams, instructor in Political Economy, who has collected some information in regard to college expenses. This was done by means of circulars sent to students asking for items of expense for the last collegiate year of nine months. Thus, the Sophomore class returned answers for the Freshman year, and so on. It was found impossible to secure a sufficient number of returns from those who had graduated to make any just average of expenses of the Senior year; hence, no expenses are given for that year. Of the other classes, answers from students having homes in Lawrence were cut out, because a part of their expenses were not given, *e. g.*, board. Of the remaining students, two-thirds or more of each class sent in expense lists. The items given below are averages computed from those lists. The expenses are for the college year of nine months. They show the expenses of the men of the University, and not of the women.

AVERAGE YEARLY EXPENSE FOR STUDENTS.

KANSAS STATE UNIVERSITY.

AVERAGES FOR.	BOOKS AND STATIONERY.	CLOTHING.	ROOM RENT.	BOARD.	FUEL AND LIGHT.	WASHING.	SUNDRIES.	TOTAL.
FRESHMAN YEAR.....	$18 92	$43 68	$32 30	$93 76	$6 36	$11 06	$68 83	$274 91
SOPHOMORE YEAR.....	17 83	62 13	41 58	100 50	5 26	11 52	70 34	309 16
JUNIOR YEAR.....	22 86	55 00	43 03	115 00	7 25	16 49	75 41	335 04
JUNIOR YEAR, LAW COURSE.....	33 49	36 46	28 03	96 08	7 57	12 79	46 37	260 79
Average for *all* students, including Junior Law Course.....	23 28	49 32	36 24	101 34	6 61	12 97	65 24	294 98

These items represent the average Individual expense accounts showed a wide difference in cost for the year. The highest and lowest returns of total expense made were: Freshman, highest $533.25, lowest $139; Sophomore, highest $523, lowest $154.28; Junior, highest $459, lowest $190.

CHEMISTRY AND PHARMACY BUILDING.

PHARMACEUTICAL SOCIETY.

This society was organized in December, 1886, by the students and professors of the department, for the purpose of mutually assisting each other in the study of the sciences especially applied to the art of pharmacy, and in the practical applications of the same, and for friendly intercourse.

It holds its meetings every alternate Friday, at 3 P. M. At this time subjects of pharmaceutical interest are presented by the members present, papers are read and discussed bearing upon subjects of current interest in pharmaceutical and chemical circles. The students of the department are expected to attend these meetings.

This society has been a means of stimulating to original investigations, and of bringing together the students of both Junior and Senior courses. It forms a valuable supplement to the regular course of study.

The society has a reading-room, in which it has a number of pharmaceutical journals, both from this country and abroad.

As an adjunct to the society, an "annex" was established in 1890, whose objects are to secure positions for graduates and clerks for employers who are from the School. To accomplish this, a list of the alumni will be compiled, showing the present occupation of all graduates of the School, and correspondence established between the profession and the University.

ALUMNI ASSOCIATION.

OFFICERS.

A. J. SMITH, Ph. G., Leavenworth ..... *President.*
B. F. FIEGENBAUM, Ph. G., Lawrence ..... *First Vice-President.*
W. P. BROWN, Ph. G., Leavenworth ..... *Secretary.*
H. A. WHITE, Ph. G., Overbrook ..... *Treasurer.*
C. R. HOADLEY, Ph. G., Lawrence ..... } *Executive Board.*
C. E. LINDLEY, Ph. G., Lawrence ..... }

ALUMNI.

Class of 1886.

HARRY LEGATE RAYMOND, Ph. G.
CARL LEWIS WYLER, Ph. G.

Class of 1887.

HARRY PERRY APPLEBAUGH, Ph. G.
CHARLES C. DAILEY, Ph. G.
WILLIAM SCOTT DICK, Ph. G.
JOHN HENRY DEFORD, Ph. G.
CLAUDE BRITTON HIGHBARGIN, Ph. G.
CLARENCE REMSEN HOADLEY, Ph. G.
CORYDON ENDSLEY LINDLEY, Ph. G.
SAMUEL WATSON LINDSAY, Ph. G.
MARTIN O'DONNELL, Ph. G.
FRANK PRENTISS, B. S., Ph. G.
CHARLES LOYAL SEXTON, Ph. G.
ANDREW JACKSON SMITH, Ph. G.
THOMAS HERBERT WOOD, Ph. G.
ALBERT FREDERICK WULFEKÜHLER, Ph. G.

Class of 1888.

FRANK LINCOLN ABBEY, Ph. G.
WILLIAM CLARENCE ALBACH, Ph. G.
WILLIAM PIERSON BROWN, Ph. G.
HERBERT M. HERROLD, Ph. G.
GEORGE MCLAREN, Ph. G.
ERNEST R. RANKIN, Ph. G.
MARY ANTOINETTE RICE, Ph. G.
JOHN WILLIAMS ROOT, Ph. G.
CHARLES BORDEN SPENCER, Ph. G.
ARTHUR ELLSWORTH TOPPING, Ph. G.

Class of 1889.

BRADFORD LORING HILL, Ph. G.
WILLARD BARTHOLOW HILTON, Ph. G.
GEORGE FREDERIC KAISER, Ph. G.
EDWARD WILLIAM MORRIS, Ph. G.
ROBERT PARKER, Ph. G.
JOHN NESBIT SCOTT, Ph. G.
LOREN WADE SNEPP, Ph. G.
ALFRED T. WEBB, Ph. G.

Class of 1890.

VOLNEY T. BOAZ, Ph. G.
JOHN D. CLAASSEN, Ph. G.
BENJAMIN F. FIEGENBAUM, Ph. G.
LEROY S. HACKETT, Ph. G.
JOHN H. KENNEDY, Ph. G.
CARL PHILLIPS, Ph. G.
ROBERT POLLOCK, Ph. G.
ARTHUR M. THOMAS, Ph. G.

Class of 1891.

WILBUR STANTON AMOS, Ph. G.
FLORENCE LUELLA HEDGES, Ph. G.
HOMER ALBERT WHITE, Ph. G.

The following, having finished the course at the University, lack only the practical work required for the diploma:

Class of 1886.—Edward Bayless Fox.

Class of 1888.—Robert James McClure. George Francis Weida.

Class of 1889.—Denton Hogeboom. Ernest Himoe.

Class of 1890.—Samuel J. Kelly.

Class of 1891.—James Wilson Kennerly. Peter Müller.
Homer Clifton Oatman. William Patterson Pugh.

DONATIONS

To the School of Pharmacy, 1892.

PERIODICALS FOR THE READING-ROOM.

WEEKLIES.

Chemist and Druggist (Pharmaceutical Society), London.
Medical and Surgical Reporter, Philadelphia.
Pharmaceutical Journal and Transactions (Pharmaceutical Society), London.

SEMI-MONTHLIES.

Pharmaceutical Record, New York.

MONTHLIES.

The Registered Pharmacist, Chicago, Ill.
Indiana Druggist, Indianapolis, Ind.
Medical Record, Kansas City, Mo.
Meyer Bros.' Druggist, St. Louis, Mo.
National Druggist, St. Louis, Mo.
New England Druggist, Boston, Mass.
Pharmaceutical Era, Detroit, Mich.
Pharmaceutische Rundschau, New York.
Rocky Mountain Druggist, Denver, Colo.
Western Druggist, Chicago, Ill.
Western Drug Record, Kansas City, Mo.

APPARATUS AND DRUGS.

By Anderson Manufacturing Company, Detroit, Mich.:
One Tablet Triturate Machine.
By Gilpin Langdon & Company, Baltimore, Md.:
Series of Powdered-Drug Specimens.
By Parke, Davis & Co., Detroit, Mich.:
A cabinet of Specimen Jars, three gross.

SCHEDULE. SCHOOL OF PHARMACY, FOR THE UNIVERSITY YEAR 1892–'93.

JUNIOR COURSE.

	9–10 A. M.	10–11 A. M.	11–12 A. M.	12–1 P. M.	2–6 P. M.
FIRST TERM....	Materia Medica.	Chemistry.	Chemistry (*a*). Pharmacy (*b*).	Latin.	Laboratory Work in Chemistry.
SECOND TERM..	Physics.	Pharmacy. Materia Medica.	Botany (*b*).		Laboratory Work in Pharmacy and Physics.

SENIOR COURSE.

	9–10 A. M.	10–11 A. M.	11–12 A. M.	12–1 P. M.	2–3 P. M.	3–4 P. M.	4–5 P. M.	5–6 P. M.
FIRST TERM....	Pharmacy. Materia Medica.	Crystallography or Bacteriology.	Structural Botany (*a*). Microscopy (*b*).		Laboratory Work in Quantitative Analysis (*a*).			
					Drug Assay. Pharmaceutical Testing.			Physiology (*b*).
SECOND TERM..		Pharmacy. Materia Medica.		Organic Chem. Toxicology.	Physiological Chemistry and Urinary Analysis (*a*). Thesis, and Toxicology (*b*).			

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OF THE
UNIVERSITY OF ILLINOIS

University of Kansas.

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CATALOGUE

OF THE

SCHOOL OF PHARMACY

FOR THE

Collegiate Year 1892-'93.

ALSO,

Announcements for 1893-'94.

✢

TUITION FREE.

School of Pharmacy

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University of Kansas.

CATALOGUE

OF THE

SCHOOL OF PHARMACY

FOR THE

Collegiate Year 1892-'93.

ALSO,

Announcements for 1893-'94.

LAWRENCE, KAS.,
1893.

1893.

JULY.

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1894.

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Announcements.

For 1893.

January 2, Monday — Christmas recess ends.
January 23 to 28, Monday to Saturday, inclusive — Semiannual examinations.
January 30, Monday — Second term begins.
March 29, Wednesday — First half term ends.
March 30 to April 3, Thursday, Friday, and Monday — Spring recess.
April 4, Tuesday — Second half term begins.
May 29 to June 3, Monday to Saturday, inclusive — Annual examinations.
June 1, Thursday — Commencement concert by School of Music.
June 4, Sunday, 8 P. M. — Baccalaureate sermon.
June 5 and 6, Monday and Tuesday — Class-day exercises of the Schools of Arts, Law, Pharmacy, Music and Painting, and Engineering.
June 7, Wednesday, 10 A. M. — Commencement exercises.

(*Summer vacation of 13 weeks.*)

For 1893-'94.

September 6, Wednesday — First term begins.
September 6, 7, Wednesday and Thursday — Examination of candidates for admission, and presentations of certificates from high schools, academies, and other institutions.
September 8, Friday — General assembly of students, and annual address, in University Hall, at 10 A. M.
September 13, Wednesday — First term in Law School begins.
November 9, Thursday — Second half term begins.
November 30, December 1, 4, Thursday, Friday, and Monday — Thanksgiving recess.
December 12, Tuesday, 8 P. M. — Christmas concert by School of Music.

(*Christmas recess, Saturday, December 16, to Monday, January 1, inclusive.*)

January 1, Monday — Christmas recess ends.
January 22 to 27, Monday to Saturday, inclusive — Semiannual examinations.
January 29, Monday — Second term begins.
March 28, Wednesday — First half term ends.
March 29 to April 2, Thursday, Friday, and Monday — Spring recess.
April 3, Tuesday — Second half term begins.
May 28 to June 2, Monday to Saturday, inclusive — Annual examinations.
May 31, Thursday — Commencement concert by School of Music.
June 3, Sunday, 8 P. M. — Baccalaureate sermon.
June 4, 10:30 A. M. — Commencement exercises of School of Pharmacy.
June 4 and 5, Monday and Tuesday — Class-day exercises of the Schools of Arts, Law, Music and Painting, and Engineering.
June 6, Wednesday, 10 A. M. — Commencement exercises.

Organization and Government.

By act of the Legislature at the session of 1885, it was provided as follows:

"That the Board of Regents of the State University be directed to establish, without delay, a chair of pharmacy in said Institution."

It was further enacted at the same session of the Legislature that—

"The Board of Regents of the State University shall appoint five registered pharmacists, who shall hold office for the term of four years, to conduct the examination of all graduates in pharmacy, and sign the certificates of graduation."

In accordance with this action of the Legislature, the Board of Regents, at its meeting in June, 1885, elected Lucius E. Sayre, Ph. G., of Philadelphia, a practical pharmacist, and an experienced instructor, late professor of pharmacy in the Woman's Medical College, and instructor in materia medica in the Philadelphia College of Pharmacy, and author of "Organic Materia Medica and Pharmacal Botany," as Professor of Pharmacy, and ordered the organization of the department at the beginning of the fall term, September 9, 1885. At a subsequent meeting, the Board of Examiners in Pharmacy was appointed.

Further provision was made for the University by the Legislature of the State in an act approved February 25, 1889, and entitled "An act to provide for the government and maintenance of the University of Kansas." This act, repealing all former legislation bearing upon the same topics, continues the name of THE UNIVERSITY OF KANSAS, and its location at LAWRENCE, in DOUGLAS COUNTY. It further enacts—

That the University shall provide the means of acquiring a general and thorough knowledge in literature, the sciences, and the arts; and also provide students who desire to pursue special studies with the most approved appliances, authorities and instruction to insure the greatest knowledge and research in any special branch of learning connected with university education; that it shall consist of three departments: I. A Department of the Literatures; II. A Department of the Sciences; III. A Department of the Arts; and that within these three departments there shall be established such schools as the Regents, in connection with the Faculty, may order. The same law further enacts that the government of the University shall be vested in a board of seven Regents, six of whom shall be appointed by the Governor and confirmed by the Senate, and whose term of office shall be four years; that the Board of Regents shall be a body corporate, under the name of "The Regents of the University of Kansas," and as such may sue and

be sued, make contracts, and hold and transfer property, both real and personal, for the University.

The Board of Regents is also invested with the power to elect a Chancellor, who shall be the chief officer of the University; to appoint professors, assistants, tutors; to increase and diminish their number as the interest of the University may require; to employ a janitor, Librarian, and such other officers and employés as in their judgment the needs of the University require.

The Board is also empowered to confer such degrees and grant such diplomas as are usually conferred and granted by other institutions of learning.

Board of Regents.

F. H. SNOW, LL. D.,
PRESIDENT.

HON. D. A. VALENTINE	Clay Centre	Term expires 1895
HON. C. R. MITCHELL	Geuda Springs	" " 1895
HON. C. F. SCOTT	Iola	" " 1895
HON. CHARLES ROBINSON	Lawrence	" " 1897
HON. J. P. SAMS	Seneca	" " 1897
HON. WM. RODGERS	Barnes	" " 1897

Officers of the Board.

F. H. SNOW ..... *President.*
CHARLES ROBINSON ..... *Vice President.*
C. F. SCOTT ..... *Secretary.*
C. R. MITCHELL ..... *Auditor.*

Officers of the University.

F. H. SNOW ..... *Chancellor.*
R. K. MOODY ..... *Secretary, Treasurer, and Purchasing Agent.*
O. TEMPLIN ..... *Registrar.*
W. J. HAUGHAWOUT ..... *General Agent for University Lands.*
T. R. BREESE ..... *Supt. of Buildings and Grounds.*

Committees of the Board.

F. H. SNOW, *ex officio* Chairman of all Committees.

Instruction:
C. F. SCOTT.
D. A. VALENTINE.
J. P. SAMS.

Library and Apparatus:
WM. RODGERS.
C. F. SCOTT.
CHARLES ROBINSON.

Finance:
C. R. MITCHELL.
J. P. SAMS.
D. A. VALENTINE.

Buildings, Grounds, and Supplies:
CHARLES ROBINSON.
C. R. MITCHELL.
WM. RODGERS.

University Land and Endowments:
WM. RODGERS.
J. P. SAMS.
C. R. MITCHELL.

Reports and Publications:
D. A. VALENTINE.
C. F. SCOTT.
CHARLES ROBINSON.

THE UNIVERSITY OF KANSAS.—Main Building.

The Faculty.

FRANCIS HUNTINGTON SNOW, PH. D., LL. D., PRESIDENT,
Botany.

LUCIUS ELMER SAYRE, PH. G., DEAN,
Pharmacy and Materia Medica.

DAVID HAMILTON ROBINSON, PH. D.,
Latin.

EDGAR HENRY SUMMERFIELD BAILEY, PH. D.,
Chemistry and Toxicology.

LUCIEN IRA BLAKE, PH. D.,
Physics.

SAMUEL WENDELL WILLISTON, M. D., PH. D.,
Anatomy and Physiology.

HANNAH OLIVER, A. M.,
Assistant in Latin.

ALVIN W. SHEPARD, B. S.,
Assistant in Physics.

EDWARD CURTIS FRANKLIN, B. S.,
Assistant in Chemistry.

SAMUEL R. BOYCE, PH. C.,
Assistant in Pharmacy.

WILLIAM CHASE STEVENS, B. S.,
Assistant in Botany.

MARTIN EVERETT RICE,
Instructor in Physics.

Students.

Graduate Student.

McClung, Clarence Erwin, Ph. G., '92,	Columbus.

Senior Class.

Baker, DeForest,	Junction City.
Bennett, Charles Grandison,	Hutchinson.
Bergman, Louis House,	Lawrence.
Gould, Allen Eugene,	Kansas City.
Kendall, Lyman Irving,	Newton.
LaMaster, Hazen Gillette,	Gardner.
Lieurance, Calvin Delbert,	Neosho Falls.
Norberg, George Benjamin,	Cedarville.
Perry, William Tecumseh,	Belleville.
Rüdiger, Alfred Pöhler,	Lawrence.
Seiler, Nelson Hughes,	Lawrence.
Wallick, Ellsworth Frank,	Olathe.
Watt, Robert Æneas,	Carbondale.
Wilson, Walter Everett,	Miltonvale.
Woodward, Brinton Darlington,	Lawrence.
Youngberg, Alfred,	Ottawa.

Seniors, 16.

Junior Class.

Barber, Perry Bigelow,	Lawrence.
Bly, Charles Lawrence,	Coffeyville.
Brooks, Oscar Alonzo,	Burden.
Carter, Albert Bovard,	Hollis.
Chapin, Mary Caroline,	Springfield.
Clark, William Marshall,	Coffeyville.
Cohn, David,	Lawrence.
Daggett, Charles Henry,	Walnut.
Elmore, Ralph DeWitt,	Nortonville.
Eyth, Caroline Huldah,	Enterprise.
Fox, Harry Irvin,	Atchison.
Haller, George Ervin,	Burlingame.
Harkins, John Hamilton,	Divide, *Colo.*
Hedges, Lydia Grace,	Grinnell, *Iowa.*
Hogeboom, Harry Buckminster,	Topeka.
Jenkins, Herbert Edward,	Seneca.
Joslin, Charles Edwin,	Topeka.

Kelling, William Bernard,	Garnett.
Kelly, Thomas Henry,	Gardner.
McMahon, James Eugene,	Argentine.
McMaster, Robert Truitt,	Topeka.
Northrup, Austa Adele,	Lawrence.
Oehler, Fred. C.,	Chillicothe, *Mo.*
Pinkston, Fred. Allen,	Fort Scott.
Proffitt, George Henry,	Raymond.
Ralston, Benjamin Ellis,	Belleville.
Reynolds, Carl Davidson,	Erie.
Richards, Gertrude Elizabeth,	Hartland.
Scheffer, Samuel Montgomery,	Minneapolis.
Seiler, Sarah Agnes,	Lawrence.
Smith, Ross Orion,	Hill City.
Steadman, Leonard Summerville,	Junction City.
Steinberger, Carl Ira,	Erie.
Van Sandt, James Warren,	Erie.
Voeltzel, Louis Charles Gilbert,	Argentine.
Watson, Alvin Harl,	Mulvane.

Juniors, 36.

Preparatory Medical.

Brown, Grant Gratis,	Atchison.
Douglass, Arthur James,	Colony.
Guttery, Edward George,	Glasco.
Hill, Emma,	Oswego.
Wilson, Chalmers Blakeley,	Effingham.

Preparatory Medical, 5.

School of Pharmacy.

Terms of Admission.

The candidate must pass an entrance examination in the following studies:

1. Arithmetic, including the metric system.
2. History of the United States.
3. Geography, descriptive and physical.
4. English Grammar and Composition.
5. Civil Government. Fiske, Macy, Townsend, or Peterman.

Admission by Certificate.—By authority of the Board of Regents, the Faculty will admit students into the School of Pharmacy upon the certificate of any president, superintendent or principal of any college, academy, or other incorporated institution of learning, or of any high school, showing that such students have completed all the above-named preparatory studies.

In all cases, if the first term's work in the University develop the fact that the student's preparation has been imperfect, the right of the professor in charge is reserved to require further and satisfactory examination.

The Educational Scope of the School.

The graduate of this department is assured a thorough qualification for the most responsible positions in pharmacy, and given a well-grounded preparation for service as a manufacturing chemist or as an analyst. First and foremost, the School insists that the training shall be thorough and practical. Its course, requiring, as it does, a steady discipline of the intellectual and executive powers, offers decided advantages over those courses in pharmacy where the student's immediate contact with the circle of instruction is but occasional.

Length of Course.

The course of this School is similar to that offered in other universities of best standing, notably, Ann Arbor and the University of Wisconsin. It embraces two years of nine months each.

Experience has fully demonstrated that shorter courses leave those who pursue them seriously crippled, especially for the higher departments of the profession. Short cuts here, as elsewhere, produce superficial cramming, which never proves a safe foundation for future

advancement. This is shown to be true by the demand of progressive educators for higher standards and longer courses.

Special Students.

Persons of good characters who desire, for reasons satisfactory to the Faculty, to pursue some special line of study, without becoming candidates for a degree, are allowed to enter as special students. No entrance examinations are required of such special students further than may be necessary to satisfy the instructors under whom the studies may be taken.

Special students are subject to the same regulations as regular students with regard to the quality of work performed, and attendance at recitations and examinations, but not as to the number of studies to be pursued. The Faculty may at any time deprive any special student of his privileges, if it appear that he is abusing or neglecting them.

COURSE OF STUDY.

Junior Year.

First Term:

Pharmacognosy, 9 to 10, Tuesday and Thursday. Mr. Boyce.
Pharmacy, 9 to 10, Monday, Wednesday, and Friday. Mr. Boyce.
Physics, 11 to 12, Monday, Wednesday, and Friday; laboratory, 2 to 5, Thursday and Friday. Mr. Shepard.
General Chemistry, 10 to 11, daily. Mr. Franklin.
Qualitative Analysis, with laboratory practice from 2 to 5, Monday, Tuesday, and Wednesday, counting as full term's work. Mr. Franklin.

Second Term:

Pharmacy, 9 to 10, Monday, Wednesday, and Friday. Mr. Boyce.
Materia Medica, 9 to 10, Tuesday and Thursday. Mr. Boyce.
Latin, 10 to 11, every day. Miss Oliver.
Botany, 11 to 12, *(*a*) Tuesday and Thursday; (*b*) Monday, Wednesday, and Friday. Professor Stevens.
Laboratory practice in Pharmacy, 2 to 5, every day. Counting as full study. Mr. Boyce.

Senior Year.

First Term:

Pharmacy, 12 to 1, Tuesday and Thursday. Professor Sayre.
Materia Medica, 12 to 1, Monday, Wednesday, and Friday. Professor Sayre.
Structural Botany (*a*), 2 to 4, every day. Professor Stevens.
Physiology (*b*), 4 to 5, every day. Professor Williston.

*(*a*) Means that the study occupies the first half term; (*b*) the last half term.

Crystallography (*a*), 4 to 5. Professor HAWORTH.
Drug Assay and Pharmaceutical Testing (*b*). Professor SAYRE and Mr. BOYCE.
Quantitative Analysis, with laboratory work (*a*), 9 to 12, Professor BAILEY.

Second Term:

Pharmacy, 9 to 10, Monday, Wednesday, and Friday. Professor SAYRE.
Materia Medica, 9 to 10, Tuesday and Thursday. Professor SAYRE.
Organic Chemistry (*a*), daily, 12 to 1. Mr. FRANKLIN.
Toxicology, with laboratory work (*b*), 12 to 1. Professor BAILEY.
Microscopic Examination of Drugs (*a*), 2 to 4. Professor SAYRE.
Physiological Chemistry and Urinary Analysis (*a*), 2 to 5, every day. Professor SAYRE.
Preparation of Thesis.

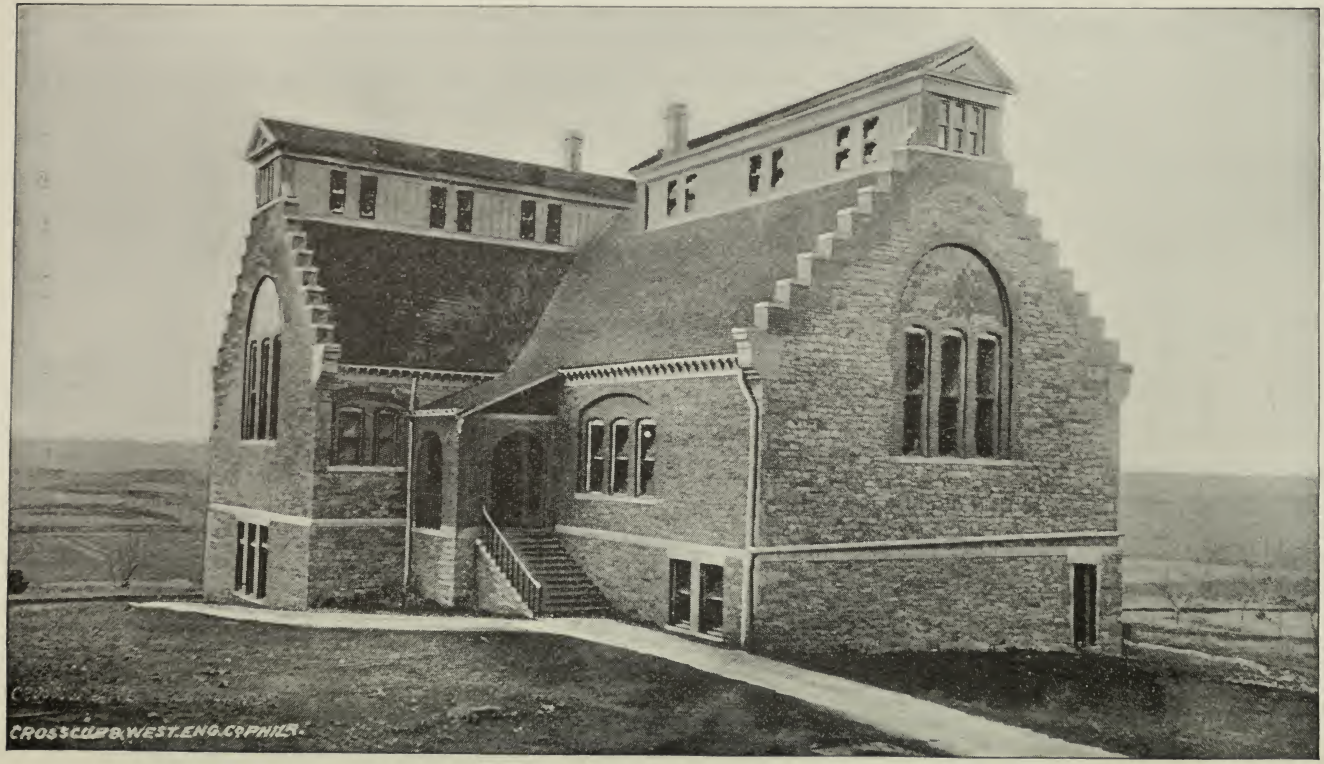
DESCRIPTION OF THE COURSES.

Junior Year—First Term.

Pharmacy.—Remington's Practice and Sayre's Essentials of Pharmacy. The work consists of lectures and recitations upon the subjects of specific gravity, the different systems of weights and measures, problems in parts by weight, alligation, and the metric system as applied to pharmacy. Particular attention is paid to the study of the formulæ of the different pharmacopœial preparations, the consideration being from a theoretical standpoint, and directed toward the action of different menstrua upon drugs of various constitutions. Monday, Wednesday, and Friday. Every day, 9 to 10. Mr. BOYCE.

Pharmacognosy.—At this time lectures are given upon the crude drugs and chemicals of the pharmacopœia. The student is given the official title, common name, German name, medicinal and physical properties, dose, and, in the case of organic drugs, also the origin and habitat. To illustrate graphically the distribution and source of the crude drugs, maps and plans convenient for ready reference, which impress upon the mind of the students the points made in the lectures, and which enable them to become familiar with the appearance and characteristics of the drugs, are placed in their hands. This list embraces about 300 drugs, and, in addition, access may be had to large collections of rare and less-important medicinal substances. Tuesday and Thursday, 9 to 10. Mr. BOYCE.

Chemistry.—Remsen's Chemistry. During the first half term of the Junior year, instruction is given in theoretical and elementary chemistry. The student has the opportunity of becoming familiar with the nomenclature of the science, with the simpler chemical formulæ and



CHEMISTRY AND PHARMACY BUILDING.

reactions, and the methods used for solving chemical problems. At the same time the more important elements are discussed, and the characteristic salts, especially those of pharmaceutical importance, are studied. By a combination of the lecture and quiz systems, the modern theories are taught, and a more intimate knowledge of the elements and their compounds, with properties and uses of each, is obtained. Every day, 10 to 11. Laboratory practice is required of all students every day, from 2 to 5. Mr. Franklin.

Qualitative Analysis.—Beilstein-Curtman, Qualitative Analysis. During the second half of this term, the student will devote at least 12 hours per week to the study of qualitative analysis. He is furnished with the necessary apparatus and chemicals, and follows a systematic course of work in the laboratory. Lectures are given at intervals upon this work. At the close of the course, the examination, which is a practical one, is so conducted that the student must demonstrate his ability to analyze an unknown mixture. Every day, 10 to 11. Mr. Franklin.

Physics.—Carhart & Schute; Laboratory Manual, Schute. The class-room work for the term consists of lectures and recitations on the general subject of physics, with experimental demonstrations; and upon special topics bearing more or less upon practical pharmacy, such as the theory and use of the microscope and the analytical balance, specific gravity, thermometry, calorimetry, saccharimetry, spectrum analysis, the metric system, and the care and handling of batteries.

The aim of the laboratory work is to train the student in such physical manipulation as is of direct importance in pharmaceutical work. Class room Monday, Wednesday, and Friday, 11 to 12; and laboratory work one afternoon each week. Mr. Shepard and Mr. Rice.

Junior Year—Second Term.

Latin.—Latin Grammar of Pharmacy and Medicine, D. H. Robinson. This important and much-abused subject receives careful and thorough attention. Professor Robinson has written a book embracing the material necessary for a pharmacist's education, without the introduction of any superfluous matter. The manner of presentation is such that the interest is awakened, and the usually dull subject is made thoroughly interesting. Every day during first term, 10 to 11. Miss Oliver.

Pharmacy.—Patch's Laboratory Manual. Lectures, recitations, and laboratory practice. The instruction is a continuation of the work of the first term, especial prominence being given to practical application of the theories taught in the preceding lectures. Practice is given in the analysis of alcoholic liquors, estimation of acids and alkalies by specific gravity, and comparison with the tables of percentage and specific gravity of the pharmacopœia. The preparation of the official volumetric solutions, and their application to the estimation of iron, salts, and other chemical compounds, is taught. This is followed by the man-

ufacture of the scale salts of iron, syrups, and mucilages, the distillation of ethers, the preparation of Galenicals, and the estimation of solubilities. Actual prescription work in the making of pills, suppositories, ointments, troches, etc., closes the practice in the pharmaceutical laboratory for the year. Lectures Monday, Wednesday, and Friday, 10 to 11; laboratory every day, 2 to 5. Mr. Boyce.

Materia Medica.—Maisch's Organic Materia Medica. The first half term completes the work of the preceding term, and is followed by the study of the physical properties of the more prominent official tinctures. The second half is devoted to a series of lectures and recitations upon the classification of medicinal substances from a botanical and physical standpoint. The lectures are illustrated by lantern slides and an excellent collection of photographs, as well as by herbarium specimens. Tuesday and Thursday, 10 to 11. Professor Sayre and Mr. Boyce.

Botany.—Gray's Manual. The instruction in botany is the same as that given to Freshmen in the Collegiate Department. Two weeks are devoted to lectures upon the lower orders of plants. Eight weeks are then devoted to laboratory work, in which the student gives his chief attention to the wild phænogamous plants of the surrounding region. Accuracy of observation and skill in description are thus acquired, making the correct classification of plants a comparatively easy undertaking. In connection with this part of the work, each student is required to prepare a small herbarium of at least 40 specimens of plants, special prominence being given to the medicinal species.

The foregoing combination of text-book, laboratory work and field practice is intended to give such familiarity with the elementary principles of systematic botany that a student of average ability will acquire the power, with the aid of a good manual, to determine for himself any species of wild plant with which he may be brought in contact. First half, on Tuesday and Thursday; second half, on Monday, Wednesday, and Friday, 11 to 12. Professor Stevens.

Senior Year—First Term.

Pharmacy.—Remington's Practice and Sayre's Essentials. A review of the important features of the Junior course is given at the beginning of the year, followed by lectures devoted more particularly to pharmaceutical chemistry. The subsequent lectures embrace a more careful study of the organic substances used in medicine, their constituents, chemical and physical characteristics, and application in the preparations of the United States Pharmacopœia. Each drug is considered individually, but drugs and their preparations are so grouped as to make prominent a study of the proximate principles. For instance, those containing gums and mucilage will be associated on the one hand, and those containing proximate principles on the other. Subsequently, the organic substances obtained from the animal kingdom are considered.

In the second half of this term, laboratory work in drug assay, detection and quantitative estimation of adulterations and impurities, and standardization of pharmaceutical preparations, occupies every afternoon of the week. Recitations and lectures Tuesday and Thursday, 12 to 1; laboratory work, 2 to 5. Professor SAYRE.

Materia Medica.—Maisch's Materia Medica. At the beginning of the term, special stress is laid upon microscopical structure; this is followed by actual practice with the microscope, making and mounting sections of organic drugs. No effort is spared in making the students familiar with both external form and internal structure of the official substances under consideration. In the second term, the therapeutic and physiological actions of drugs are considered. For this purpose, Potter's Materia Medica is used as a text-book. Monday, Wednesday, and Friday, 12 to 1. Professor SAYRE.

Structural Botany.—During the first half-term, a course is given in advanced work in structural botany. By means of the compound microscope, the student is made acquainted with the internal structure of plants of all classes, from the simplest protophites to the most complicated phænogams. The botanical laboratory is supplied with about 40 compound microscopes of the best manufacture, with magnifying powers ranging from 75 to 1,500 diameters, and one of these instruments is at the service of each student for two hours daily. Every day, from 2 to 4. Professor STEVENS.

Physiology.—Martin's Human Body. Daily recitations, with collateral reading and frequent examinations, supplemented by diagrams, lantern, and other illustrative apparatus. Every day (*b*), 4 to 5. Professor WILLISTON.

Quantitative Pharmaceutical Analysis.—In the Senior year, the first half term is devoted to the study of quantitative pharmaceutical analysis, with special reference to the needs of the practical pharmacist. The aim is to secure accuracy in the results and careful habits in manipulation, rather than to have the student perform a large number of analyses.

The following analyses or their equivalents will be executed:

GRAVIOMETRIC.

Analysis of—	*For the determination of—*
1. Potassium carbonate	Water.
2. Ammonium-ferrous sulphate	FeO.
3. Barium chloride	Ba, Cl, H_2O.
4. Hydro-di-sodic phosphate	P_2O_5.
5. Potassium bichromate	Cr_2O_3.
6. Calcite ($CaCO_3$)	CaO.

VOLUMETRIC.

7. Acidimetry.
8. Alkalimetry.
9. Determination of iron.

10. Determination of chlorine.
11. Determination of free iodine.
12. Determination of copper.

Drug Assay and Pharmaceutical Analysis.—Laboratory work. A special course is outlined by Professor Sayre. A scheme for the analysis is placed in the hands of the student and description of methods of analysis is supplemented by dictation. (*b*) 10 to 12. Professor Sayre and Mr. Boyce.

Senior Year—Second Term.

Pharmacy.—Remington's Practice and Sayre's Essentials. The lectures in this course embrace a more careful study of the organic substances used in medicine, their constituents, their chemical and physical characteristics, and the application of these in the preparations of the United States Pharmacopœia. Each drug is considered individually, but drugs and their preparations are so grouped as to make prominent a study of the proximate principles. For instance, those containing gums and mucilage will be associated on the one hand, and those containing proximate principles on the other. Subsequently, the organic substances obtained from the animal kingdom are considered. While the drugs and preparations of the United States Pharmacopœia claim principal place as the more important, due attention is paid to non-official ones, and in both cases great care is given to the detection of impurities by the official and other methods of testing. Monday, Wednesday, and Friday, 9 to 10. Professor Sayre.

Materia Medica and Therapeutics.—Potter's Materia Medica and Therapeutics. During this term the physiological action and therapeutic application of drugs are considered, and special lectures are given occasionally by local physicians, and the students receive all the advantages given to preparatory medical students. Tuesday and Thursday, 9 to 10. Professor Sayre.

Organic Chemistry.—Remsen's Organic Chemistry. Lectures and recitations. First half term. Every day, at 12. Mr. Franklin.

Physiological Chemistry.—Vaughn's Chemical Physiology and Pathology. Laboratory work and recitations, supplementing the work in materia medica and therapeutics. In the laboratory, chemical examination of the fluids and secretions of the body is made, and the digestive ferments are extracted, purified, and studied. The organic salts occurring in the body are also prepared. Every afternoon during the first half term, 2 to 5. Professor Sayre and Mr. Boyce.

Urinary Analysis.—Text-book same as above. The subject is taught by lectures and recitations, together with laboratory practice in the physiological and microscopical laboratories. Urine is studied in its normal condition and its constituents estimated. Samples of pathological urine are secured through physicians and examined for abnormal constituents. 2 to 5. Professor Sayre and Mr. Boyce.

SNOW HALL OF NATURAL HISTORY.

Toxicology.—Instruction given by lectures and laboratory work. The instruction in the class room is demonstrated in the laboratory by experiments upon the lower animals and upon organic tissues. A large collection of the best works on this subject are placed at the student's disposal for reference. Every day, 12 to 1. Professor Bailey.

Thesis.—This work embodies the results of research by the student in the laboratory and library. The subject is to be selected before the end of the first half of this term; an outline of the proposed investigation is to be presented, with references to the literature, at the beginning of the second half term; and the completed report or thesis is to be ready before the end of the term. For many subjects, the literary research may be made as valuable as the experimental investigation.

OPTIONAL STUDIES.

The studies named below may be taken by any graduate of this School, or others who are prepared for the work. They are advanced studies in the several departments, and the work is done with the regular advanced classes.

OFFERED BY THE DEPARTMENT OF PHARMACY.

1. Manufacture of artificial fruit essences and other compound ethers.
2. Drug assaying; standardization of crude drugs, and their preparation; and the valuation of chemicals.
3. Plant analysis; a systematic course from a chemical standpoint.
4. Analysis of foods; advanced work in physiological chemistry, estimating the value of such articles as butter, lard, coffee, flour, etc., and determination of adulterations.
5. Analysis of nostrums; determination of composition of articles with secret formulæ.
6. Original research; special investigation, requiring the service of more than one department in the University, can be arranged for by submitting the plan of work to the pharmacy faculty.

OFFERED BY THE DEPARTMENT OF CHEMISTRY.

1. Chemistry of the hydrocarbons.
2. Advanced quantitative analysis, including water analysis, mineral-water analysis, and sugar analysis.
3. Blowpipe analysis, and mineralogy.
4. Assaying of ores—gold, silver, etc.

OFFERED BY DEPARTMENT OF BOTANY AND ENTOMOLOGY.

1. Cryptogamic botany; advanced work in structural botany—lectures and laboratory work.
2. Physiological botany.

3. Histological botany.
4. Bacteriology; lectures and laboratory work.

OFFERED BY DEPARTMENT OF PHYSICS.

1. Electricity and magnetism; heat and light — lectures and experimental demonstration. Laboratory work four hours a week.

University Extension.

The following course is offered in connection with the School of University Extension.

Medical Chemistry and Sanitary Science.

BY L. E. SAYRE, PH. G.

1. Inorganic Substances used in Medicine. Introduction to the course. Relation of chemistry and sanitary science. Classification of inorganic substances from a chemical and medical standpoint. Physiological and therapeutic actions. Inorganic acids and metalloids.

2. Inorganic Substances (continued). Alkalies, alkaline earths, and metals; their combinations, and physiological and therapeutic actions.

3. Organic Substances. Remedial agents from the vegetable and animal kingdoms. Methods of extraction and isolation of active organic substances. How they should be regarded.

4. Organic Substances (continued). Classification from a botanical standpoint. The relation of this classification to therapeutic action.

5. Active and Poisonous Principles. Methods of obtaining. Chemical and physical properties. History and properties of the alkaloids.

6. Prominent Combination of Inorganic Substances as Remedial Agents. By chemical combination and decomposition. Mechanical mixtures.

7. Remedial Combinations from the Vegetable Kingdom. Extracts, tinctures, infusions, etc.

8. Alcohol and its Derivatives. Ether, chloroform, chloral, iodoform, etc.

9. Antiseptics and Disinfectants. Definition of terms. Proper use of. Sanitation.

10. Carbolic Acid and Other Coal-Tar Products. Manufacture. Chemical and physical properties. Physiological action. Relation of chemical to therapeutic properties.

11. Digestive Ferments and Dietetics. Foods. Principles from the fluids of the body important in the digestive process. The relation of foods to these principles.

12. General Summary. Relation of remedial agents to sanitary science. The pharmacopœia. The dispensatories.

(For particulars, correspond with Chancellor F. H. Snow.)

First Year Medical Course.

In order to accommodate students of the University who desire to prepare for the profession of medicine, a course of study has been arranged closely related to the Departments of Pharmacy, Chemistry, and Natural History, and including materia medica, human physiology, and comparative anatomy (with dissections). This course is accepted by some of the leading medical colleges as the first year of their courses, and students passing a satisfactory examination here will be admitted to the second year in those colleges on certificate of the Faculty of this University.

Requirements for Admission.

Students will be admitted to the First Year Medical Course who are ready for admission to the Freshman class of the School of Arts, in all English studies.

Course of Studies.

First Term:

General Chemistry, daily, 10 to 11. Mr. Franklin.

Physiology (*b*), daily, 2 to 4. Lectures. Professor Williston.

Pharmacy and Pharmacognosy, daily, 9 to 10. Mr. Boyce.

Human Osteology and Vertebrate Anatomy. Lectures and laboratory work. Daily, 2 to 4. Professor Williston.

Second Term:

Physiological Chemistry and Urinary Analysis, daily (*a*), 2 to 5. Professor Sayre.

Botany, (*a*) Tuesday and Thursday; (*b*) Monday, Wednesday, and Friday; 11 to 12. Professor Stevens.

Materia Medica, Monday, Wednesday, and Friday, 9 to 10. Professor Sayre.

Toxicology (*b*), daily, 12 to 1. Professor Bailey.

Histology, daily, 10 to 12. Lectures and laboratory work. Professor Williston.

During the Junior and Senior years, the student in the School of Arts may, by availing himself of the privilege in the selection of his optional courses offered him, pursue all the above courses or their equivalents which may be accepted by medical schools in place of the first year in their regular course in medicine.

Applications for further information should be addressed to the Registrar of the University.

Miscellaneous Information.

Laboratory Facilities.

The student in this School has access to six distinct and well-arranged laboratories. These are: The pharmaceutical laboratory, the two chemical laboratories (for qualitative and quantitative analysis), microscopic laboratory, physical laboratory, and bacteriological laboratory. If the student desires, and has the time, he has the privilege of other laboratories, not mentioned, for other lines of study. For example, assaying, mineralogy, etc. He also has access to the collections in natural history, chemistry, mineralogy, and pharmacy. He has the advantage of an extensive library, such as is not found ordinarily, and such as can be furnished only by universities having extensive facilities.

Drug-Store Experience

is essential to success in the pursuit of pharmacy, and cognizance of this fact is taken in the requirements for graduation. While the training obtained in the drug store can be acquired nowhere else, it is impracticable to carry on such work while the student is attending college. The custom of occupation while attending lectures is not only detrimental to mental culture, but is physically overtaxing. Such work limits too greatly the time for study, and frequently prevents the student from giving a faithful and prompt attention to the instruction of the class room and the laboratory.

The opinion is held by some that the actual experience gained in the drug store is a sufficient compensation for the consequent deficiencies in college work, the unwarranted assumption being that the student receives plenty of practice and manual training by such an arrangement.

The conclusion that drug-store experience and the work of the pharmaceutical laboratory of the School are similar, and that one can be substituted for the other, is an unwarranted one, for the following reasons: In the former, the attention in the way of special instruction is necessarily limited to the leisure of the one in charge, whose superintendence is also demanded in other directions; while in the latter, the sole aim is to impart instruction, and nothing but the work of instruction presses on those in charge. The scope of the former is limited to the peculiar situation and circumstance of that one store, and it can therefore at best give only a limited range of manual training; while the aim of the latter is to familiarize the student with all operations

met with in any store, and therefore the manual training is not circumscribed by narrow limits.

Students in pharmacy will recite with collegiate classes in botany, physics, chemistry, and other subjects which are common to the various departments of the University.

They are granted the privileges of the University library, and of the various collections in zoölogy, botany, and chemistry, and all advantages possessed by other students of the institution.

Requirements for Graduation.

The degree of Ph. G. (Graduate in Pharmacy) will be given to such students as complete the above course, and pass a satisfactory examination upon the same: *Provided*, That no degree shall be conferred until the candidate shall present satisfactory testimonials showing that he has had two years of *practical experience* in pharmacy. This *apprenticeship* must be had in the actual drug business, and may either *precede* or *follow* the course of study prescribed in the University. It is, however, recommended as in every way more desirable that the practical work herein required shall precede the theoretical work of the class room and of the University laboratories. The work and study of a student in this department leave no time for employment in a drug store while attending school.

Graduate Course in Pharmacy.

A graduate course, including more advanced work in botany, materia medica, pharmacy, mineralogy, organic chemistry, and the various branches of organic analysis, is offered to any who can avail themselves of it. The main object of this course is to lead to original investigation. (See "Optional Studies.")

Examinations.

Examinations will be held at the end of each term upon the work of that term. These term examinations are held by the Faculty, and are generally written. At the end of the course, examinations will be held by the Faculty, in connection with the State Board of Examiners in Pharmacy, in such manner as may hereafter be prescribed.

Registration, Record, etc.

The candidate for admission to the School of Pharmacy should present himself to the Registrar for examination or registration of grades from high school on the dates indicated under "Announcements." If entitled thereto, he will receive a certificate of registration, copies of term schedule, regulations, etc. At the close of each term, each student is given a transcript of the record of his work, which is kept in the office of the Registrar.

Fees.

Tuition in the School is *free* to Kansas students. The State supports the School, and looks for no pecuniary return from the students.

Nonresidents of the State are required to pay a fee of $25 per annum. If such students complete the work of this School in less than two years (unless one year shall have been taken in some other college of pharmacy), a double fee will be required.

A library fee of $5 is collected from all students of the University.

A graduating fee of $5 is required of *all* students. No charge is made for the diploma.

In the several laboratories, charges are necessary to cover the actual expense for the material used and breakage of apparatus. Under the head of "Pharmacy," a fee of $20 is required, which secures admission to pharmaceutical, physiological and microscopical laboratories. The preparations of the laboratory, at the end of the course, become the personal property of each student, and are of much value to him.

For physics, a deposit of $3 is required.

For botany in the second year, $1.

In the chemical laboratory, the following deposits are payable in advance, to cover the cost of gas, chemicals, breakage, etc.:

Introductory chemistry (Junior)	$2 50
Qualitative analysis (Junior)	5 00
Quantitative analysis (Senior)	5 00

An account is kept with each individual, and any excess above actual consumption is returnable at the end of the year.

All fees must be paid before registration at the opening of the school year.

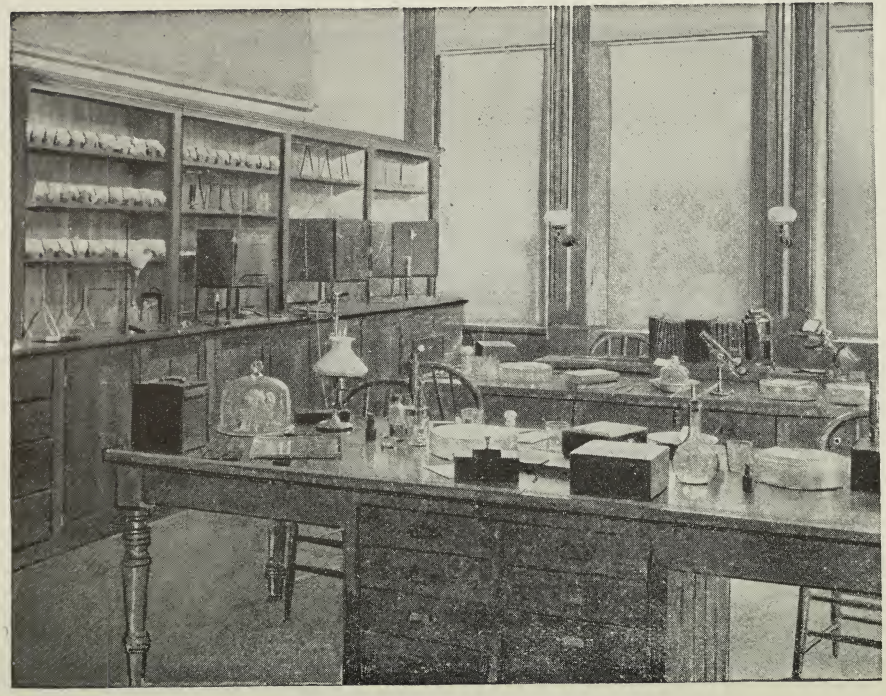
Expenses.

Day board in clubs varies, according to the economy practiced, from $1.50 to $2.25 per week. On this plan, a company of students appoints a steward or a committee to arrange terms with a competent housekeeper, to buy provisions as needed, to keep a list of rooms for rent in the vicinity, and to collect from the membership the estimated cost in advance for each week. These students generally furnish their own rooms, and provide lights, fuel, etc. An unfurnished room rents for about $2 per month.

Price of board cannot be stated in advance, as much depends upon the demands of the student. Table board ranges from $2 to $3.50 per week.

The total expenses incurred by students, including clothing, may be seen by reference to the table of statistics appended, which was prepared last year under the direction of Mr. Adams, assistant in History and Sociology, who has collected some information in regard to college expenses. This was done by means of circulars sent to students asking for items of expense for the last collegiate year of nine months. Thus,

the Sophomore class returned answers for the Freshman year, and so on. It was found impossible to secure a sufficient number of returns from those who had graduated to make any just average of expenses of the Senior year; hence, no expenses are given for that year. Of the other classes, answers from students having homes in Lawrence were cut out, because a part of their expenses were not given, *e. g.*, board. Of the remaining students, two-thirds or more of each class sent in expense lists. The items given below are averages computed from those lists. The expenses are for the college year of nine months. They show the expenses of the men of the University, and not of the women.



BACTERIOLOGICAL LABORATORY.

Average Yearly Expense for Students.

AVERAGES FOR.	BOOKS AND STATIONERY.	CLOTHING.	ROOM RENT.	BOARD.	FUEL AND LIGHT.	WASHING.	SUNDRIES.	TOTAL.
FRESHMAN YEAR.....	$18 92	$43 68	$32 30	$93 76	$6 36	$11 06	$68 83	$274 91
SOPHOMORE YEAR.....	17 83	62 13	41 58	100 50	5 26	11 52	70 34	309 16
JUNIOR YEAR.....	22 86	55 00	43 03	115 00	7 25	16 49	75 41	335 04
JUNIOR YEAR, LAW COURSE.....	33 49	36 46	28 03	96 08	7 57	12 79	46 37	260 79
Average for *all* students, including Junior Law Course.....	23 28	49 32	36 24	101 34	6 61	12 97	65 24	294 98

These items represent the average. Individual expense accounts showed a wide difference in cost for the year. The highest and lowest returns of total expense made were: Freshman, highest $533.25, lowest $139; Sophomore, highest $523, lowest $154.28; Junior, highest $459, lowest $190.

Pharmaceutical Society.

This society was organized in December, 1886, by the students and professors of the department, for the purpose of mutually assisting each other in the study of the sciences especially applied to the art of pharmacy, and in the practical applications of the same, and for friendly intercourse.

It holds its meetings every alternate Friday, at 3 P. M. At this time subjects of pharmaceutical interest are presented by the members present, papers are read and discussed bearing upon subjects of current interest in pharmaceutical and chemical circles. The students of the department are expected to attend these meetings.

This society has been a means of stimulating to original investigations, and of bringing together the students of both Junior and Senior courses. It forms a valuable supplement to the regular course of study.

The society has a reading room, in which it has a number of pharmaceutical journals, both from this country and abroad.

As an adjunct to the society, an "annex" was established in 1890, whose objects are to secure positions for graduates and clerks for employers who are from the School. To accomplish this, a list of the alumni will be compiled, showing the present occupation of all graduates of the School, and correspondence established between the profession and the University.

Scholarship.

Professor Sayre has this year received the sum of $50 from Mr. Joseph Jacobs, of Atlanta, Ga. This is to be used to establish a scholarship in the School of Pharmacy, under the direction of the Dean of the School. The sum will be duplicated annually by Mr. Jacobs, and is to be loaned to young men that prove themselves worthy to receive it by their careful and earnest work while in the School. The loan shall be without interest for such a time after the student's graduation as circumstances render expedient.

Donations

To the School of Pharmacy, 1893.

PERIODICALS FOR THE READING ROOM.

WEEKLIES.

Chemist and Druggist (Pharmaceutical Society), London.
Medical and Surgical Reporter, Philadelphia.
Pharmaceutical Journal and Transactions (Pharmaceutical Society), London.

SEMIMONTHLIES.

Pharmaceutical Record, New York.

MONTHLIES.

The Registered Pharmacist, Chicago, Ill.
Indiana Druggist, Indianapolis, Ind.
Medical Record, Kansas City, Mo.
Meyer Bros.' Druggist, St. Louis, Mo.
National Druggist, St. Louis, Mo.
New England Druggist, Boston, Mass.
Pharmaceutical Era, Detroit, Mich.
Pharmaceutische Rundschau, New York.
Rocky Mountain Druggist, Denver, Colo.
Western Druggist, Chicago, Ill.
Western Drug Record, Kansas City, Mo.

APPARATUS AND DRUGS.

By Parke, Davis & Co., Detroit, Mich.:
Specimens for Materia Medica Cabinet, $25.
By Mrs. G. A. Banks:
Specimens of Eucalyptus, in flower and fruit, from California.

Books Used.

TEXT-BOOKS.

Remington's Practice of Pharmacy.
Sayre's Essentials of Pharmacy (interleaved).
Beilstein-Curtman, Qualitative Analysis.
Remsen's Chemistry.
Robinson's Latin Grammar of Pharmacy and Medicine
Brockway's Essentials of Medical Physics.
Patch's Laboratory Manual of Pharmacy.
Maisch's Organic Materia Medica.
Gray's Manual of Botany.
Martin's Human Body.

BOOKS OF REFERENCE.

United States Dispensatory.
National Dispensatory.
United States Pharmacopœia
Prescott's Organic Analysis.
Halliburton's Physiology and Pathology.
Watt's Dictionary of Chemistry.
Allen's Commercial Organic Analysis.
Oldberg & Long's Laboratory Manual of Pharmaceutical Chemistry.
Hoffman & Power's Examination of Medical Chemicals.
Attfield's Chemistry.
Home Studies in Pharmacy (Oldberg).

In the library there are over 400 volumes which have a direct bearing upon the subject of pharmacy. About the same number are devoted to chemistry.

Alumni Association.

It is the earnest desire of the Faculty to keep the graduates of the School in as close relation to it as possible. To do this, it is necessary to know the residences and employments of the students. This will require the hearty coöperation of the alumni, and it is earnestly hoped that each student will feel it incumbent upon him to notify the Dean of the School, upon making a change of residence or place of business. It is desired to give credit for any meritorious work done, or for degrees taken. Graduates will please notify the Dean of such events.

The question mark (?) after a name is a request for information.

The asterisk (*) indicates that the student has not yet had the practical work of two years necessary to secure the degree of Ph. G. Unless otherwise stated, all degrees are taken at the Kansas State University.

Owing to the limited time allowed for the work, the list is not nearly complete, but it is expected that by next year a complete roster can be presented.

Officers.

W. S. DICK, PH. G. ..... PRESIDENT.
J. H. KENNEDY, PH. G. ..... FIRST VICE PRESIDENT.
W. S. AMOS, PH. G. ..... SECOND VICE PRESIDENT.
B. F. FIEGENBAUM, PH. G. ..... SECRETARY.
C. E. McCLUNG, PH. G. ..... TREASURER.
W. S. DICK, PH. G. .....
MARY A. RICE, PH. G. ..... } EXECUTIVE COMMITTEE.
H. C. OATMAN, PH. G. .....

Roll of Alumni.

Class of 1886.

RAYMOND, HARRY LEGATE, Ph. G. Member of the firm of H. L. Raymond & Co., retail druggists, Lawrence, Kas. Member Kansas Pharmaceutical Association and American Pharmaceutical Association.

FOX, EDWARD BAYLESS, Ph. G., A. M., Highland University. Pharmacist, Washington, Kas. Member of the Kansas Pharmaceutical Association.

WYLER, CARL LEWIS, Ph. G. ?

Class of 1887.

Applebaugh, Harry Perry, Ph. G. ?

Daily, Charles C., Ph. G. Drug clerk, Denver, Colo.

Dick, William Scott, Ph. G. Prescription clerk in B. W. Woodward's wholesale and retail drug store, Lawrence, Kas. Member of the Kansas Pharmaceutical Association.

Deford, John Henry, Ph. G. ?

Highbargin, Claude Britton, Ph. G. ?

Hoadley, Clarence Remsen, Ph. G. Stationer, Lawrence, Kas.

Lindley, Corydon Endsley, Ph. G. Pharmacist, Lawrence, Kas.

Lindsay, Samuel Watts, Ph. G. Pharmacist, Thayer, Kas.

O'Donnell, Martin, Ph. G. Prescription clerk for Swift & Holliday, Topeka, Kas. Member of the Kansas Pharmaceutical Association.

Prentiss, Frank, B. S., Ph. G. ?

Sexton, Charles Loyal, Ph. G. Drug clerk, St. Louis, Mo.

Smith, Andrew Jackson, Ph. G. Pharmacist, Leavenworth, Kas. Member of the Kansas Pharmaceutical Association.

Wood, Thomas Herbert, Ph. G. ?

Wulfekühler, Albert Frederick, Ph. G. Pharmacist, Leavenworth, Kas.

Class of 1888.

Abbey, Frank Lincoln, Ph. G. Member of the retail drug firm of Abbey & Johnson, Newton, Kas. Member of the Kansas Pharmaceutical Association.

Albaugh, William Clarence, Ph. G. ?

Herrold, Herbert M., Ph. G. ?

McClure, Robert James.*?

McLaren, George.*?

Rankin, Ernest R., Ph. G. ?

Rice, Mary Antoinette, A. B., Ph. G. Clerk and bookkeeper for George Leis Drug Company, Lawrence, Kas. Member of the Queen Isabella Association, medical department.

Root, John Williams, Ph. G. Assayer for Philadelphia Smelting and Refining Company, Pueblo, Colo. Member Colorado Scientific Society.

Spencer, Charles Borden, Ph. G. ?

Topping, Arthur Ellsworth, Ph. G. Proprietor of City Drug Store, Overbrook, Kas.

Weida, George Francis.* Late assistant in pharmacy in Kansas School of Pharmacy. Now student in Johns Hopkins University, Baltimore, Md. Member Berlin Chemical Society.

Class of 1889.

Hill, Bradford Loring, Ph. G. ?

Hilton, Willard Bartholow, Ph. G. ?

Himoe, Ernest.*?

Hogeboom, Denton.*?

Kaiser, George Frederick, Ph. G. Pharmacist for S. H. Lucas, Ottawa, Kas. Member Kansas Academy of Science.

Morris, Edward William, Ph. G. Clerk in house of D. W. Morris, Emporia, Kas.

Parker, Robert, Ph. G. ?

Scott, John Nesbitt, Ph. G. ?

Snepp, Loren Wade, Ph. G. ?

Webb, Alfred T., Ph. G. Drug clerk, Clay Centre, Kas.

Class of 1890.

Boaz, Volney Tate, Ph. G. ?

Classen, John B., Ph. G. Deceased.

Fiegenbaum, Benjamin F., Ph. G. Manager and junior partner in the firm of Fiegenbaum Pharmacy Company, Lincoln, Neb.

Kelley, Samuel J., Ph. G. Pharmacist, Olathe, Kas.

Phillips, Carl.* ?

Thomas, Arthur W., Ph. G. Pharmacist, Wakefield, Kas.

Class of 1891.

Amos, Wilbur Stanton, Ph. G. Member of the firm of W. E. Teare & Co., Dodge City, Kas. Member of the Kansas Pharmaceutical Association.

Brown, William Pierson, Ph. G. Chemist and pharmacist, Brown Medical and Manufacturing Company, Leavenworth, Kas. Member Kansas Pharmaceutical Association.

Hackett, Leroy S., Ph. G. Drug clerk, St. Joseph, Mo.

Hedges, Florence Luella, Ph. G. Pharmacist and manager for Dr. T. M. Hedges, Grinnell, Iowa.

Kennerly, James Wilson, Ph. G. Drug clerk, Pueblo, Colo.

Kennedy, John H., Ph. G. Clerk for George Leis Drug Company, Lawrence, Kas.

Müeller, Peter, Ph. G. Pharmacist, Guthrie, Oklahoma Territory.

Oatman, Homer Clifton, Ph. G. Clerk for the firm of Leonard & Hamlin, retail druggists, Lawrence, Kas.

Pollock, Robert, Ph. G. Drug clerk, Portland, Ore.

Pugh, William Patterson.*?

White, Homer Albert, Ph. G. Member of firm of D. A. White & Son, Eudora, Kas. Member Kansas Pharmaceutical Association.

Class of 1892.

Allen, Maude Beatrice.*?

Combs, Robert.*?

De Donder, Achille, Ph. G. Drug clerk, St. Mary's, Kas.

Day, Harold *?

Diggs, Fred La Port, Ph. G. Student in Kansas State University.

Eicholtz, Alexander J., Ph. G. Clerk for C. E. Stedman, retail druggist, Junction City, Kas.

McClung, Clarence Erwin, Ph. G. Student in Kansas State University. Chemist in sugarhouse of W. P. Miles & Co., Burnside, La.

McCreight, Samuel Marlin, Ph. G. Student in Rush Medical College, Chicago, Ill., and pharmacist in the A. T. & S. F. Railway Company's dispensary.

Priestley, Carrie.*?

Rankin, Victor Alexander.*?

Rankin, Herbert John.*?

Youngberg, John Edwards, Ph. G. Pharmacist with Doctor Ellis, Carbondale, Kas.

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